

RECOIL



# Hell on Earth

You're in the Path of a Volcanic Eruption—Now What?

PREPARATION  
SURVIVAL  
MOBILITY  
DEFENSE  
MEDICAL  
GEAR



**DIY Survival Knives**

Backyard Training:  
Survivalism On  
**A Budget**

Filipino **Combatives**  
Against Armed  
Attackers

**Review:** Goal Zero  
Torch 250

**Giving Birth** With  
No Medical Help

**Canoes:** Are They  
Prepper Worthy?

MULTICOLOR LIGHTS

SURVIVAL HAMMOCKS

BUGGING OUT  
WITH A BABY

JERKY TASTE TEST



THE SURVIVAL NETWORK  
TEN

OFFGRIDWEB.COM  
ISSUE 11



# MORE BITE!

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**OFFGRID**

ISSUE 11

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Prices and details for products and services featured in this issue are set by the manufacturers, retailers, and agencies, and are subject to change without notice.



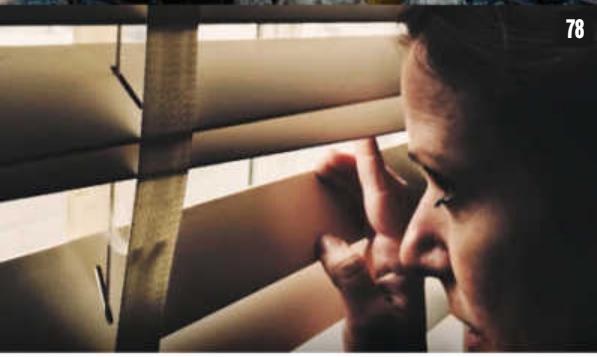
Throughout this issue you will see certain images are labeled as being 100% Actual Size. This designation is for the print edition of this issue. Because of the various screen sizes on different tablets and computers, we cannot always provide actual life size images in digital versions. We apologize if this causes any confusion and thank you for your understanding.

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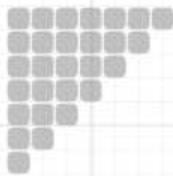
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Cover Photos: Jorge Nuñez, SDubi, Photobvious, matsou, P\_Wei, olaser, aury1979, freestylephoto, alxpin/istockphoto.com



# ON THE COVER



1



6



5



9



7



10



4

## 1 Respirator

**MAKE & MODEL**
**Elmridge Protection**

iEvac Smoke Hood/Fire Hood

**MSRP**

\$160

**URL**
[www.forgesurvivalsupply.com](http://www.forgesurvivalsupply.com)

## 2 Jacket

**MAKE & MODEL**
**Propper**

Defender Halo II

**MSRP**

\$210

**URL**
[www.propper.com](http://www.propper.com)

## 3 Pants

**MAKE & MODEL**
**Wild Things LLC**

Hard Shell Pants FR GT

**MSRP**

\$389

**URL**
[www.wildthingsgear.com](http://www.wildthingsgear.com)

## 4 Gloves

**MAKE & MODEL**
**Line of Fire Tactical Gloves**

Wookie

**MSRP**

\$120

**URL**
[www.loftactical.com](http://www.loftactical.com)

## 5 Footwear

**MAKE & MODEL**
**Under Armour**

UA Ridge Reaper Extreme Hunting Boots

**MSRP**

\$225

**URL**
[www.underarmour.com](http://www.underarmour.com)

## 6 Tomahawk

**MAKE & MODEL**
**RMJ Tactical**

Jenny Wren Tomahawk

**MSRP**

\$425

**URL**
[www.rmjtactical.com](http://www.rmjtactical.com)

**7 Flashlight****MAKE & MODEL**

Fenix

LS22 2015 Edition

**MSRP**

\$55

**URL**[www.fenixlight.com](http://www.fenixlight.com)**8 Backpack****MAKE & MODEL**

Red Rock Outdoor Gear

mavrik U.45

**MSRP**

\$196

**URL**[www.rrog.com](http://www.rrog.com)**9 Knife****MAKE & MODEL**

Columbia River Knife &amp; Tool

M16-13ZER

**MSRP**

\$60

**URL**[www.crkt.com](http://www.crkt.com)

# OFF THE COVER

**10 Personal Tracker****MAKE & MODEL**

SPOT LLC

Gen3

**MSRP**

\$170

**URL**[www.findmespot.com](http://www.findmespot.com)**11 Shirt****MAKE & MODEL**

Propper

Snag-Free Polo

**MSRP**

\$45

**URL**[www.propper.com](http://www.propper.com)**8****3**

# Learn and Live

By Patrick Vuong

I consider myself a perpetual student. Even when I get so good at something that I'm qualified to teach others, I'm still thrilled to pick up new tricks or to be reminded of the fundamentals. I believe that the end of learning is the end of life — thinking you know everything leads to zero growth. As a wise man once told me, if you're not growing, you're dying.

That's why it's such a thrill to work on this magazine. Here at OG, I'm not just writing, editing, and photographing, but also learning potentially life-saving knowledge from the top survivalists, outdoor adventurers, and all-around badasses.

For example: Dave Merrill has learned a lot and endured a lot. Aside from being an avid outdoor adventurer from the start (he's an Eagle Scout), he's also a U.S. Marine Corps combat veteran and has witnessed what catastrophe looks like, up close and personal, in developing nations. He's also an accomplished writer and photographer, and makes his debut here by shedding light on a topic that TV shows, movies, novels, and — *ahem* — survival magazines rarely cover: bugging out with a baby.

Another outdoorsman to pop his OG cherry is Kevin Estela. As a wilderness-skills instructor and martial artist, he brings a depth and breadth of practical knowledge to an article on bug-out canoes. Our third writer to make his first appearance in these pages is Jared Wihongi, a former SWAT officer who teaches combatives and survival skills to elite law enforcement units and special-operations forces around the world. Here he shows how Filipino martial arts can be used against an armed attacker.

This issue is also packed with tutorials on a variety of topics, from DIY bows to how to increase your foot speed. Plus, Tim MacWelch's recipe for making your own jerky is supplemented with a comprehensive taste test of some premium dried meat. Check out the article to see if they're prepper worthy. And instead of regurgitating manufacturer's press releases or speaking highly of products we've never handled, we carry on our proud tradition of presenting *honest* reviews of gear, from flashlights to survival hammocks.

Yes, I said "hammocks." Don't think one belongs in your bug-out bag? Turn to the buyer's guide by feature editor Rob Curtis to see if we change your mind about this old-school form of shelter. You might learn something new. I know I did.



## Contest Alert



The Woodman's Pal appears to be a funky-looking machete, but it has a storied history. Developed in 1941, it was used by the U.S. Army Signal Corps for land clearing in World War II. During the Vietnam War it was standard issue in survival kits for all air crews, thanks to the odd-shaped blade's ability to work like an axe, saw, machete, pruning shears, and more.

The Woodman's Pal is turning 75 years old next year, and its maker, Pro Tool Industries, wants you to choose the features of its next model. Head to [www.OFFGRIDweb.com/woodmanspal75th](http://www.OFFGRIDweb.com/woodmanspal75th) to learn more about the contest, submit an idea, and maybe win some booty!



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Inner City Defense Pencil

Enyo Back Up Knife

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**1 MAKE & MODEL**  
**Thirty Seconds Out**  
Afghanistan Ski Patrol Hoody

**MSRP**  
\$44

**URL**  
[www.thirtysecondsout.com](http://www.thirtysecondsout.com)

**NOTES**  
Ski patrolling is a pretty tough job. It's not all about helping cougars get from the bunny slope to a barstool without chipping a tooth. There are some places in the world where ski patrollers are tested by the old book, where goats roam the hills, and men ski in dresses. Yes. We're talking about the Kunar Valley. Even if you've never seen the brown topped mountains or spent eight hours picking up frozen water bottles and MREs from a failed airdrop, you can still show your support for those who have by wearing this awesome hoody. It's an American Apparel, made-in-the-USA cotton fleece that says, "I'm here to help."



**2 MAKE & MODEL**  
**5.11 Tactical**  
TacLite Anorak

**MSRP**  
\$150

**URL**  
[www.511tactical.com](http://www.511tactical.com)

**NOTES**  
With its Taclite Anorak, 5.11 Tactical brings a classic outdoorsy element to its lineup of armed citizen-worthy rugged clothing. In this new pullover, they've leveraged modern materials and technology to improve what is probably the greatest pieces of traditional snivel kit since frozen-assed legionnaires first started wearing paenula while operating operationally out in the cold. Yes, we like anoraks. Anyway, at first glance this looks to be one of the more legitimately discreet outer garments currently made by any of the companies making allegedly discreet outer garments. Yes, it has the logo emblazoned on the right side and there's hook and loop on the sleeve, but 5.11 gear is becoming so ubiquitous that isn't nearly the tell it once was.



**3 MAKE & MODEL**  
**Patrol Incident Gear**  
FDT Bravo FR Glove

**MSRP**  
\$68

**URL**  
[www.skdtac.com](http://www.skdtac.com)

**NOTES**  
Work gloves are fine if you're tending to your garden or hauling lumber from the hardware store, but they're not necessarily the best for emergency situations. Most are cheaply made, are too bulky, and don't offer much finger dexterity. Enter the new FDT Bravo FR Glove. These tactical gloves feature not only fire-resistant Nomex, but also a palm made of goat leather and a trigger finger made of ultra-thin sheep leather (both quite durable while maintaining hand sensitivity). This construction protects your latest manicure from flame, blisters, and splinters, while providing a level of dexterity that's uncommon among fire-retardant gloves. Plus, this model is touch-screen compatible and available in multiple colors and in sizes small through XXL.



**4 MAKE & MODEL**  
**Farm To Feet**  
Columbus

**MSRP**  
\$23

**URL**  
[www.farmtofeet.com](http://www.farmtofeet.com)

**NOTES**  
Whether you're digging fence posts, hiking a few miles for fun, or trying to get ahead of a forest fire, there's no time for swampfoot (a sweaty offshoot of swampass). Fight swampfoot with nature's secret weapon, Merino wool. Farm to Feet offers these 71 percent Merino socks with cushioning from toe to boot top. Great for anyone wearing tall work boots or combat boots. They've also reached deep into the sock-maker's bog of tricks to make a seamless toe-box. No seams. No blisters. No swampfoot. We're sold. And, no, that wasn't a typo. We love puns.

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**5 MAKE & MODEL****Ulysses Press**

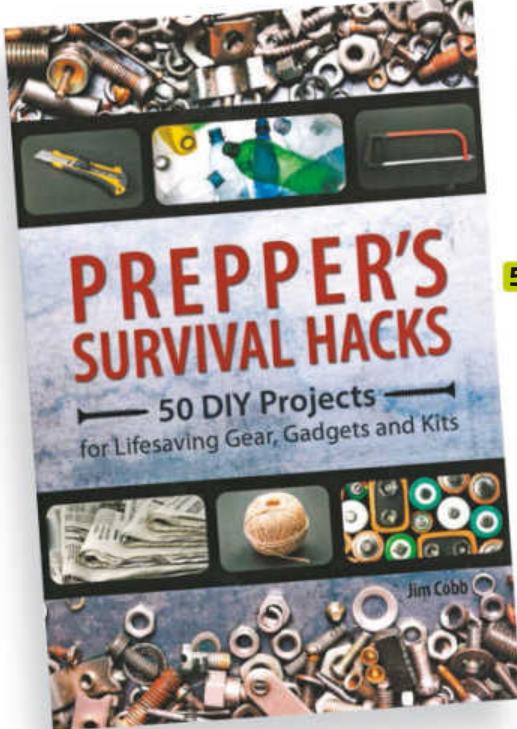
*Prepper's Survival Hacks: 50 DIY Projects for Lifesaving Gear, Gadgets, and Kits*

**MSRP**

\$16

**URL**[www.ulyssespress.com](http://www.ulyssespress.com)**NOTES**

One of the biggest complaints we hear in our industry is how expensive survival gear and quality training can be. Thankfully, we have experts like Jim Cobb. As a disaster-prep consultant and prolific author (as well as a frequent *OG* contributor), he's now written a comprehensive book on how to prepare for all sorts of scenarios with affordable do-it-yourself solutions that are ridiculously ingenious. His tutorials show how to turn everyday objects into lifesaving tools — did you know you could make a waterproof fire-starter with nothing more than a plastic straw and some dryer lint? How about turning obsolete keys into impromptu arrowheads? Who said preparing for the worst had to be tedious and pricy?

**6 MAKE & MODEL****Fixit Sticks**

65 & 25 Inch-Pound Kit

**MSRP**

\$112

**URL**[www.fixitsticks.com](http://www.fixitsticks.com)**NOTES**

How did a bike tool company improve on the design of the incredibly useful three-way driver? Well, yeah, they added a fourth head. That's obvious, but Fixit Sticks wanted to make it pocketable. And they did it. Sticks that fit together to form a T-handle with magnetic  $\frac{1}{4}$ -inch sockets on each end. It's a multitoolists dream. Realizing not just bike mechanics were using it, Fixit Sticks made a set with torque limiters so shooters can work on scope rings and other gun parts. Kits come in a combination of 65-, 45-, 25- and 15-inch-pound limiters along with 16 different bits,  $\frac{1}{2}$ -inch socket and  $\frac{1}{4}$ -inch bit adapters. Everything fits in the included Tactical Tailor-designed pouch.

**7 MAKE & MODEL****DPx Gear**

HEAT/F Grey Elmax

**MSRP**

\$263

**URL**[www.dpxgear.com](http://www.dpxgear.com)**NOTES**

The DPx HEAT is a small knife that thinks it's a big knife. It's fun to watch it get into big knife trouble and watch all the big knife guys snicker ... until that little guy goes all Rocky Balboa and drops the champ on the canvas. Yeah, the HEAT punches way above its weight. With 0.18 inches of black PVD coated and stonewashed Elmax steel, we're surprised the little guy doesn't think it's a crowbar. This 2.26-inch, titanium frame-locking underdog might be scarce, but if you live in a place that outlaws bigger blades, you might want to track one down.

**8 MAKE & MODEL****SPOT**

GEN3

**MSRP**

\$170

**URL**[www.findmespot.com](http://www.findmespot.com)**NOTES**

We used the first version of SPOT's satellite-communication goodness years ago in Iraq. We let family know we were OK by sending a preprogrammed message saying we hadn't found Saddam Hussein, yet. People could get online to see a dot that showed our position every once in a while, too. It was darn cool tech. Now we're all jaded and want stuff that's smaller with better battery life. That's just what SPOT has given us with the GEN3. We can check in, be tracked, let folks know something is amiss, and of course, call in the cavalry if it all goes south. What's new is the smaller size, twice the battery life of the original, and the ability to power the device by USB. We'll be messing with this model for the next few months — watch for a full review in a future *Hands On* column.

**9 MAKE & MODEL****GSI Outdoors**

Glacier Stainless 1L Vacuum Bottle

**MSRP**

\$35

**URL**[www.gsioutdoors.com](http://www.gsioutdoors.com)**NOTES**

Hot coffee can turn the turdiest day around. You just need to keep it hot. Glass-lined vacuum bottles are so last decade. It's all about stainless-steel interiors, now. Rugged and efficient, stainless-steel vacuum bottles like this one from GSI Outdoors can keep your drink warm for 15 hours. We tried to test the 15-hour claim, but got impatient. We put 212-degree coffee in the bottle and made it to 12 hours before we had to have a cup. The java was 165 degrees. And it burned our tongue. 'Nuff said.





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# Multicolor Flashlights

Story by John Teator

Photos by Michael Grey

**C**our eyes' pupils dilate, or widen, in the dark to allow more light to enter, allowing us to see better. That's what some people call our natural night vision. It takes a few moments for our eyes to adjust to darkness or brightness, so drastic changes in light levels can leave us seeing bright spots or nothing at all until our pupils can adjust. This is where multicolor flashlights can help us out.

The most common colored lights are red, blue, and green. Each of these is "softer" and don't affect our night vision as severely as white light. They are also less likely to be seen at distance, which is an advantage for those who wish to keep a low profile.

Because red light appears less bright to the human eye and also provides more contrast, it is most commonly used as a general-use light at night.

However, red light can make map reading a bit more challenging, since many lines and markers are printed in red. For this reason, blue light is preferred for map

reading. Blue light is also better at spotting bodily fluids like blood, which makes it a common choice for not only police investigators and search-and-rescue teams, but hunters as well. It's also known to be useful for cutting through fog.

Like red and blue, green light can help preserve natural night vision. Unlike white light, it doesn't

attract insects and doesn't spook fish or game — remember that the next time you go camping, angling, or hunting.

Multicolor flashlights allow us to stay effective long after the sun has set. So, we've gathered some of the premier models on the market. Read on to see which one lights up your nightlife. ■■■



MAKE & MODEL	Nitecore EC11	First Light USA T-MAX Pro	LED Lenser P7QC
MAX. LUMEN OUTPUT	430	700	220
MAX. RUNTIME	20 hrs (lowest mode)	60 hrs (low mode)	25 hrs (low mode)
OVERALL LENGTH	2.95 in	3.4 in	5.23 in
WEIGHT WITH BATTERIES	2.2 oz	5.9 oz	6.1 oz
BATTERY TYPE	CR123, rechargeable Li-ion IMR18350, or rechargeable Li-ion RCR123	CR123 (2, included)	AAA (4, included)
CONTROLS	Constant on, mode side switches	Constant on and momentary push-button switch, mode switch	Constant on/momentary tail-cap push-button switch, mode bezel switch
MSRP	Starting at \$60	\$280	\$80
URL	<a href="http://www.goinggear.com">www.goinggear.com</a>	<a href="http://www.goinggear.com">www.goinggear.com</a>	<a href="http://www.ledlenserusa.com">www.ledlenserusa.com</a>


**Nightstick** Dual-Switch Dual-Light

60

3 hrs

5.3 in

2.4 oz

AAA (2, included)

Dual constant-on push-button switches

\$10

[www.baycoproducts.com](http://www.baycoproducts.com)
**Streamlight** Night Com LED

105

3.5 hrs

5.43 in

5.4 oz

CR123 (2, included)

Constant on/momentary tail-cap push button switch, rotary mode switch

\$74

[www.streamlight.com](http://www.streamlight.com)
**Coast** TX100

125

13 hrs

5.9 in

4.8 oz

AA (2, included)

Constant on/momentary tail-cap push button

\$54

[www.coastportland.com](http://www.coastportland.com)
**Coleman** CPX 4.5 Multi-Color LED Flashlight

High 155

2 hrs

6.42 in

8.1 oz

AAA (3, included), Li-ion battery pack (optional)

Constant-on bezel ring switch

\$23

[www.coleman.com](http://www.coleman.com)

# HIGHLIGHTS



**Nitecore EC11**

This puppy measures less than 3 inches long, but packs a whole lot of lumen power. In its turbo mode, it generates 430 lumens when powered by a single CR123 battery. When an optional rechargeable battery is inserted, the lumen count surges to 900 lumens! The EC11 has two buttons located on its side close to its bezel. One button turns it on and off while the other cycles through its many light functions, including a low-powered red light and a strobe feature. GoingGear.com offers this model in multiple bundles, from one that includes a single-bay battery charger with LCD display (\$77 total) to another that has a souped-up charger and car adapter plug (\$97 total).

**Pros:** Durable, compact size, powerful light, multiple power-source options

**Cons:** Too many button features can be confusing, might be too small for big hands



**First Light USA T-MAX Pro**

Designed to help free up your hands for other tasks, the T-MAX Pro allows the user to access its three switches with the use of just one thumb. It comes with a finger loop that keeps the light in place. There is a momentary-on switch that gives you quick access to 700 lumens of searing bright light. Two smaller switches allow you to turn on and cycle through its colored light options (white, red, blue, green) in varying brightness levels. The T-MAX Pro also includes options for a complete power lock out, strobe, and multicolor safety beacon modes.

**Pros:** Extremely bright, tied with the LED Lenser for offering the most colored lights (four)

**Cons:** Can feel awkward to hold, overly complicated operation, the \$280 price tag (ouch!)



**LED Lenser P7QC**

The P7QC is an updated version of LED Lenser's popular P7 model and its first four-color handheld flashlight. It provides 220 lumens of brilliant light with a press of its tail-cap push-button switch or can be toned down to 40 lumens by just another click. Yet another click turns on its strobe function. All three light modes are available in each of its colors: white, red, blue, and green. The bezel can be twisted to change the light colors.

**Pros:** Four colored lights, very bright light, common battery type

**Cons:** Challenging to operate all its functions with only one hand



**Nightstick Dual-Switch Dual-Light**

The Dual-Switch Dual-Light flashlight has two switches located on its polymer body that offer the user a choice of powering its white light flashlight, red light floodlight, or both at the same time. Its compact oval housing is water resistant and features a soft touch finish. The flashlight's white light is emitted from its end, while the floodlight's red light shines through a window on the side of the body, allowing multiple lighting techniques depending on your situation. It's lightweight and includes a pocket clip.

**Pros:** Two lights can be operated independent of one another, quite affordable

**Cons:** No momentary-on switch capability



**Streamlight Night Com LED**

The Night Com LED is equipped with a single white light C4 LED that produces 105 lumens of light. It also has dual red LEDs that can run for up to 28 hours, shining 2.5 lumens of light as well as a provision that allows it to power a dimly lit single red LED that helps protect your natural night vision. Its power is operated via a tail-cap button while its light modes are controlled by a rotary switch found on its side near the bezel end.

**Pros:** Easy to use controls, durable build

**Cons:** A little complicated to use one-handed



**Coast TX100**

Housed in an impact- and weather-resistant aluminum body, the TX100 contains three virtually unbreakable LEDs that light up in red, white, or blue. Coast says this is its longest-reaching colored light option and lists the TX100 to be able to throw out to more than 300 yards. The red light helps preserve night vision while the blue light can cut through fog without creating too much glare. To switch colors, the user must push the tail-cap and cycle through each colored light.

**Pros:** Robust build, common battery type, brightness

**Cons:** Switching colors requires the light to be cycled through



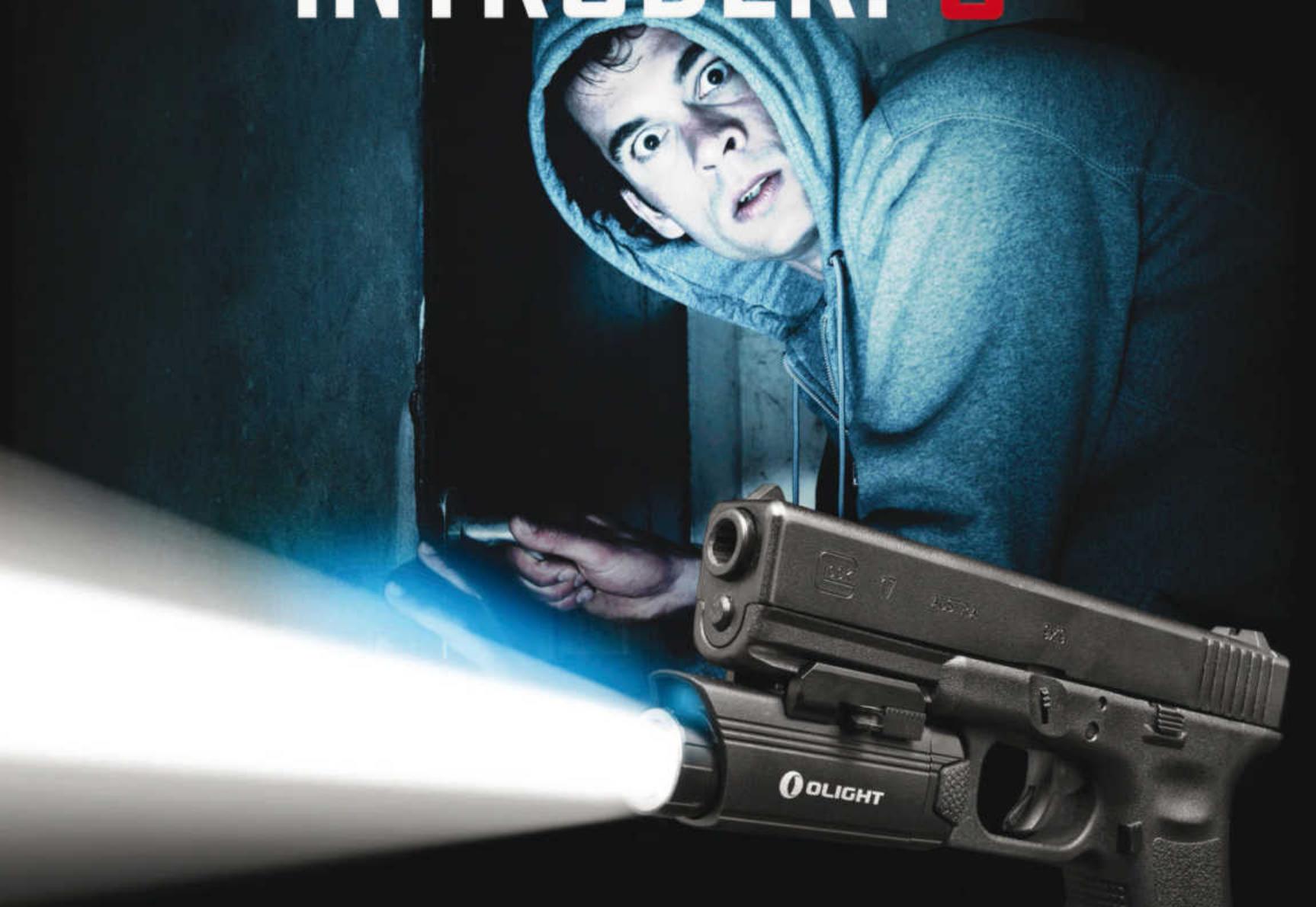
**Coleman CPX 4.5 Multi-Color LED Flashlight**

The CPX 4.5 Multi-Color LED's white light is rated at 155 lumens with a 390-foot range. The light is activated and can be color changed by the twist of its ring switch. Its red light mode engages five lower-powered LEDs and its aluminum casing is impact- and water-resistant. This flashlight can be powered by three common AAA batteries or by an optional rechargeable battery pack.

**Pros:** Multiple power options, easy to switch from white to red light, affordable

**Cons:** Difficult to operate one handed

# YOU: 1 INTRUDER: 0



Take control and shift the balance of power with Olight's new PL-1 Valkyrie LED pistol light. Discretely navigate through darkness with the PL-1's low-light Blue LEDs to gain the tactical advantage over potential intruders. Easily engage the 400-lumen main beam via its tactile ambidextrous switching to blind the assailant and stop him dead in his tracks. There are no victims here.

**O** OLIGHT®  
[www.olightworld.com](http://www.olightworld.com)



Easily replace the single CR123A lithium battery by unscrewing the bezel of the light.  
Attach the light via its durable swing arm mount to any Picatinny or Glock® style rail.



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ISSUE 11

# WHAT IF?

Yellowstone's Underground Super-Volcano Erupts?

Story By Tim MacWelch | Illustrations by Sarah Watanabe-Rocco



The monotonous rumbling of the snow coach was almost lulling your passengers to sleep after the busy day you'd all had. The machine chugged softly, almost like a slow train, until the sharp jolt hit and slid you and your passengers into the window. The mother in your tour group let out a shriek of surprise and covered her mouth with her hand quickly, embarrassed, as if this were part of the ride. Her family straightened themselves in their seats, wide-eyed. No sooner than everyone regained their seating and composure, another blow struck the snow machine, much stronger than the first. The impact was accompanied by a loud sound like thunder that wouldn't stop.

You halted the snow machine and quickly looked around through the large square windows. The sun was hanging low in

the southwest, bathing the snow-covered terrain in a golden light. But to your dismay, an enormous dark-gray cloud began to boil up from the ground and block the light of sunset. As soon as the thundering sound started to subside, your senses were assaulted again by the shuddering of the earth, which shook the snow coach and nearby trees violently. The base of the grayish black ash cloud had widened and the speed it was growing had increased. Rocks began pelting the vehicle, some large, hurled into the sky by the force of the volcanic upheaval. The light had diminished to a surreal and sudden twilight.

You and your tour group sat in shock, looking at this hellish display of volcanic activity. The churning cloud of ash and gas grew in the southwest, in the direction you were headed to get back to the lodge.

In this diabolical installment of *What If?* we will see what happens to a small group when the earth cracks open and the bowels of the underworld spew forth. For three different views on surviving this catastrophic event, OG asked three survival experts to spin a tale of nature versus mankind. With us is Jim Cobb, who has published numerous prepper books and is a well-respected disaster-preparedness consultant. We also have Rudy Reyes, an actor, martial-arts instructor, and former special-operations member with the U.S. Marine Corp's 1st Reconnaissance Battalion. He knows "a little something" about thriving in the face of adversity. And finally there's me, Tim MacWelch, longtime survival instructor and author of several survival manuals.

Is there any way to survive when the very ground beneath you tries to take your life? Read on, and see for yourself.

## The Scenario



### SITUATION TYPE

Natural disaster



### YOUR CREW

You and a private tour group



### LOCATION

Yellowstone National Park, Wyoming



### SEASON

Winter



### WEATHER

Daytime: 20 degrees F; nighttime: -20° F

**The Setup:** You're a male guide for a snow coach tour company in your late 50s. You drive a snow coach, a touring van with tracks and skis instead of wheels and tires. Your vehicle has large glass windows for your customers to take photos of the winter wonderland that is the Yellowstone National Park. A family has booked a private full-day tour around Old Faithful and Geyser Basins. The father, Marcus, and the mother, Katerina, are in their early 40s. Their oldest boy, David, is 15, and the youngest, Eugene, is 13.

**The Complication:** Most of the tour has gone without a hitch despite the teens being slightly annoying. You're winding down the day and heading back to basecamp when multiple earthquakes rock your stagecoach. Then, moments later, the Yellowstone caldera blows, sending lava, rocks, and harmful ash everywhere!



We found out later that folks in the area had felt the ground trembling for at least a couple of hours before the first eruption. We hadn't felt a thing, due to the rumbling of our own in the snow coach.

When the volcano erupted, we suddenly had rocks and flaming globes of lava raining down around us. The snow coach slid and skidded from side to side. We finally came to a standstill with the back end resting against a pine tree. We were OK, but shaken up a bit. No one was injured, though, thankfully. I tried raising Do-reen at home base, but there was no response, not even a crackle in the static. Of course, we all had cell phones, but service was spotty in this area on a good day...and this was far from a good day.

The light outside was already dimming due not only to the waning sunlight, but also the falling ash. The father, Marcus, began opening his door and I told him to stop – we didn't know what we were dealing with yet. Before he could slam the door closed, we all caught a whiff of something acrid and foul in the air.

The lava flow was moving downhill slowly, almost like syrup down a pile of pancakes...if the syrup was glowing red and igniting every tree and shrub it touched, that is. The flow was several hundred yards away, but it would get to us eventually. The steam rising from the melting snow wasn't helping our visibility issues, either. I knew we had to bolt. Immediately.

As I started to pull the snow coach forward, several large rocks tumbled down the hill. One of them hit the front skis, pushing us to the side a bit. I couldn't get the skis to straighten out. Before I could do it myself, Marcus jumped out of the snow coach and ran over to the skis. He'd pulled his scarf up over his face and was frantically kicking at the rock, trying to break it loose. Marcus began coughing and heaving as the rock finally rolled free. He tried walking back to his side of the snow coach and collapsed. I pulled my goggles down over my eyes, took a

## DISASTER-PREP EXPERT: Jim Cobb's Approach

deep breath, and covered my mouth and nose with my scarf. Jumping outside, I managed to drag Marcus to his door. His son, David, helped me get him inside and the door closed again in just a few seconds. I managed to climb back into the driver's seat and close the door. As I sat down and sucked in air, mentally vowing to start a workout plan if I survived this.

His wife, Katerina, was sobbing and yelling while shaking Marcus. There was blood leaking out from his nose. His eyes were half open and vacant. Their other son, Eugene, tried pushing his mother aside, hollering something about CPR and Boy Scouts.

Eugene was still valiantly doing chest compressions in vain as I put the snow coach in gear. We'd moved no more than 50 feet when a boulder struck the passenger side of the snow coach, giving us whiplash. We lurched to a stop. Stuck. We needed to ditch the coach and go on foot – ash and bad air be damned. I grabbed the soft-sided cooler that held the remains of our packed lunches and bottled water and tossed in the small first-aid kit from where it hung on the dashboard. I pulled out the small toolkit from under my seat and the flares that were strapped to the inside of the door.

I turned in my seat and told everyone that we needed to get out of Dodge. We all came to the same conclusion at the same time: There was no way we could carry Marcus' body.

"Listen, I know this sucks, but there's nothing we can do about it right now," I said. "He'd have wanted you all to survive, right? That's not going to happen if we stay here." I told them to put on their ski goggles, pull up their scarves, and take shallow breaths. I handed David the toolkit, and we all piled out of the snow coach. I carried the cooler, Katerina the flares.

We walked sideways down the hill, moving across rather than straight down. The snow wasn't too deep here. I realized we were headed toward a small cavern I'd explored several months earlier. It wasn't much, but it would provide some degree of shelter and hopefully time to figure out our next move. Plus, the mouth of the cave faced away from the danger, which couldn't be a bad thing. I told everyone to grab some of the low-hanging dead branches from the trees we were passing, and I did the same.

We reached the cavern about 10 minutes later. I'd not been the first person to find it, of course, and previous visitors had left evidence of their visits behind. There was some graffiti on the walls and the usual assortment of old beer bottles, cigarette butts, and food wrappers on the floor. There were even the remnants of an old campfire near the cave opening. I pulled down my scarf and took some tentative breaths. The air seemed OK.

We were sweating due to our exertion, but I knew that wouldn't last. The temperature was going to fall overnight. Sweat plus cold equals hypothermia. The first order of business: light a fire, hence all the pine branches. I toyed with the idea of trying to get a branch lit with the lava, but figured that might just lead to bad things. I didn't want to waste one of the flares, either, if I could avoid it.

I asked the boys to start breaking the branches into smaller pieces as I searched the cave. I found a foil gum wrapper and asked Eugene if he still

had his DSLR camera with him. He passed me his camera, and I popped out one AA battery from his high-powered flash. I took the gum wrapper and tore a bit off each side, so it was thin in the middle and wide at each end. Picking up a fast food bag, I twisted it up a bit and asked Eugene to hold it for me. I held the AA battery just under the fast food wrapper. Pinching one of the wide ends of the gum wrapper against the positive side of the battery, foil side touching the battery, I held the other end of the wrapper against the negative terminal. Almost immediately, the thinner middle of the wrapper started on fire. Eugene was quick to hold the paper bag close to that little flame and got the fire burning. We gently placed this under a pile of the thinnest branches and soon we had a nice little fire going.

Then both boys helped me roll a good-sized rock, maybe 3 feet across, between the fire and the cave opening. Taking an emergency blanket from the first-aid kit, I draped the blanket over the rock and secured it with a few smaller stones. The foil on the blanket reflected the fire's heat back at us, keeping us warm and allowing our clothes to dry.

I suggested we all try to eat a little something and drink some water, knowing we were all in need of hydration whether we'd admit it or not. We finished off what was left of the sandwiches and chips and drank a bottle of water each, leaving us with just two bottles to split between us later, should it come to that.

The fire was giving off some serious heat, so I showed them that by sitting or lying on the coats, we'd insulate ourselves a bit from the ground, keeping us warmer. We took turns adding wood to the fire as the night wore on, but I think we each managed to get at least a little sleep. Exhaustion will do that, I guess.

When morning arrived, I carefully bundled my mouth and nose, then walked outside to see what's what. As I went around the hill and looked in the direction of the snow coach, I could see it was still there, though charred and almost unrecognizable. The ash had continued to fall throughout the night, adding several inches of depth to the snow still on the ground. The ash was wet and sticky, adding considerable weight to my boots as I walked. The hike to base was going to be rough. It was only about 2 miles, but traveling through this muck the entire way was going to not only slow us down, but wear us out. While the company staff obviously knew we were out there, I had no way to know how, or even if, they'd be able to search for us.

I went back to the cave and broke the news. Katerina insisted she stop and say one last goodbye to Marcus. Making sure our campfire was completely out first, we slogged our way through the wet ash toward the snow coach. We couldn't get much closer than 75 feet or so as the ground was still too hot. They each bowed their heads, crying once again, as they said their final goodbyes. I did the same, praying for help from above to get this family to safety without any more casualties.

With sad hearts, we began to make our way toward base, hoping against hope that we'd find help there.

## EX-MILITARY COMMANDO: Rudy Reyes' Approach

 The sun began its decent over the western ridge of Yellowstone National Park as my private tour was getting in their last pictures of Old Faithful when swarms of birds caught my attention. They too were heading west.

I panned the vast terrain before me, the animals, from predators to prey were also moving west in unison.

I knew something wasn't right. I had that eerie feeling in the back of neck. It was time to leave.

I called to Marcus, his wife Katerina, and their two teenage sons, Eugene and David, "Folks, time to go!" Marcus acknowledged me with a wave and began to lackadaisically move toward me. I looked toward the snow coach in the parking area. Again I called, but this time I summoned the deepest voice I could muster, "We need to move! Now!" The startled family responded. Moments later they caught up to me, I had already begun walking to our vehicle.

"Hey, man, we still have some time here in our itinerary," a winded Marcus said. "What's with the 'tude?"

Without breaking stride, I said, "Sir, I'm trying to get your family back safely." Suddenly, the ground jolted – wave after wave of quakes shook, sending our group to the snow-covered path. Once it subsided, I righted myself and quickly helped the group to their feet. The postquake silence was shattered with a horrific boom!

The shockwave hit seconds later, the force sent the group flying backwards for 25 yards. I got to my knees facing east, in the direction of Thumb Lake nearly 20 miles away, when the twilight glowed and a mushroom cloud began to form. The stench of sulfur dioxide filled my nostrils. "Cover your faces with your scarves," I screamed out as I cinched my scarf. I knew, given the topography of the park and where we were, the poison gas would be upon us soon. We needed to get to elevation.

The family was screaming in fear. I barked, "You need to focus. Listen to me now if you want to live. You hear me? Run!" They nodded in agreement as fire began raining from the sky.

Beyond the coach, the surrounding buildings were leveled, fires were igniting everywhere from the ejected lava-covered boulders. The air burned and our breathing was labored. As I jumped into the coach, I noticed Marcus was missing. "Close the door," I said. "I'll get him." I headed back through the ash whiteout. He was 100 yards away, on the ground coughing, and turning blue. He couldn't walk, so I grabbed him and carried him to the vehicle. The door swung open and the boys helped my put their father on the floor. "Give him mouth to mouth," I said as I started and drove the coach as fast as it would go to higher ground. The coughing stopped, and I knew he had passed.

Shutting out the hysteria behind me, I needed to focus. With the volcano to my east, I knew the park's southern exit would be blocked;

it runs along Thumb Lake. My only option was to get to Yellowstone West, 30 miles away. I also knew this must be a localized volcanic eruption – if it were the "super volcano" scientists feared, I'd already be dead.

The driving was tough, but I knew the road well. The glow of the fires, which were everywhere, also helped silhouette the terrain. The ashy sky was riddled with fireballs. As I turned to check on the family, still crying and huddling together, a large flaming boulder crashed broadside into the coach. The impact shattered the windows and split the vehicle almost in two. I stayed conscious, but the daze lasted for seconds. Instinctively, I reached for the fire extinguisher next to me and put out the flames. I then jumped, opened the side door, and ordered the boys to get out. Then I rushed to the other side to put out the rest of the flames. I used my iPhone flashlight to survey the damage...the coach was destroyed.

I walked back to the family to see the boys holding their unresponsive mother. She was bleeding heavily from severe head trauma. I pulled the father's lifeless body out, took off his heavy coat, and unzipped the lined hood. Handing David the hood, I said, "Keep this on her head and cover her with the jacket." Then, I told them to take everything useful.

I grabbed the backpacks, med kit, and a small toolbox, and dumped them by the side door. David and Eugene were combing through the mess, while I jumped up front and went through the glovebox where I found three flares. Using the toolbox, I managed to dismantle the main 8-foot ski and dragged it to where David sat organizing the supplies while Eugene treated his mom.

"Good work, men," I called out. "What do we have?" David looked up and said, "We have five packs, four bottles of water, two sandwiches, four Powerbars, I found your snow-shoes, five cellphones, and my dad's camera." I pulled the flares out of my jacket and put them in my ruck.

Then I called the boys. We all took a knee, away from a distraught Katerina. "Men, we are in a world of shit, but we can make it through this if we work together," I said. "We have about a 20-mile hike to Yellowstone West. We'll be safe there, but it's going to be tough. I know we will make it. Are you with me?" The boys sprung to the feet as I stood up, ready for the challenge.

I handed David my knife, telling him to cut out the seatbelts and bring them to me. I dragged the ski and the snow boots over to the mother. Eugene was back to holding some gauze he found in the med kit along with the hood on his mother's head. David returned with the belts, which I used to fasten the snow boots to the ski to creating a sled gurney. I jumped back into the coach and cut away seat covers.

We lined the gurney with the seat covers to create insulation for Katerina and then carefully placed her on it. I covered her in the emer-

gency blanket from the med kit and then laid the heavy coat on top of her before I strapped her in. We then created two towlines from the remaining belts, each about 8 feet long, as well as a tailing line to slow the gurney on descents. With the remaining room on the gurney, we stowed two rucks and set off down U.S. Route 287 North.

We walked for hours in the frigid cold, but the boys kept up. The ash was getting thicker, but the toxic fumes dissipated in the higher elevation. Yet, the decent to the Firehole River area near the Grand Prismatic Spring brought back the higher levels of sulfur dioxide. Luckily the strong westerly wind kept the gas from settling on the valley floor. "Keep your scarves tight over your faces and breathe slowly," I instructed the boys.

The glow ahead of us was brighter than the surrounding fires in the hills. As we neared, the glow was not a fire, but a lava vent that was spewing from what was the Grand Prismatic, and the highway was blocked.

I reached into my pocket for my iPhone 6 Plus and was amazed to see I had a signal. I pulled up Google Maps. To the right of the spring area was higher ground, which would enable us to bypass the lava flow and return to highway on the other side. I tried to call the basecamp, but the signal faded. I told the boys to rest for two minutes, drink some water, and eat only half a Powerbar each — we'd need consistent nourishment and could eat the other halves in a couple of hours.

The hike around the lava flow was extreme, but the boys were fit. I took both towlines and tied them together, and then around my waist. After an hour climb, we made it to the top and away from the flow of the hill. The increased winds made the air clearer, enabling us to see the surrounding area and the route ahead looked clear of lava, though steep and dark. We used flares to navigate. A short time later we were back on the highway.

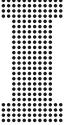
As dawn broke we tried to make calls, but the service was down. For breakfast, we shared one of the sandwiches and some water. Even in daylight, it was still hard to see much, but the temperature was rising.

By mid afternoon we had finally made it to the outskirts of Yellowstone West. The ash thinned, and in the distance I saw brake lights of what looked to be a convoy. The brake lights turned to driving lights. I yelled to Eugene, "Get the camera!" Seconds later and camera in my hand, I started running while setting off the flash as fast as it would reboot. Soon, the brake lights reappeared and a Humvee stopped, turned, and was driving towards us.

As it pulled up, the driver, an Army reservist said, "Lucky, I saw that flash. We evacuated the entire town, and we're pulling out." The door opened and we jumped in. "Thank you," was all I could say. "Thank you."



## SURVIVAL EXPERT: Tim MacWelch's Approach

 I was no stranger to tremors. Working in Yellowstone, one of the most seismically active places in the country, I thought that I'd seen and felt it all – until today. Had it been the super caldera explosion that many doomsayers had predicted, we would have been dead already. But I didn't count my good luck yet. Time was not on our side. We had to get out of there, and quickly.

The prevailing winds would be blowing the ash and fumes our way. But we couldn't take our intended route, and we couldn't go back to the lodge. The eruption looked like it was close to our destination, maybe even underneath it. I tried the two-way radio, but to no avail.

I began to run through my mental list of places where we could seek safety. My friend had a rental cabin northeast of our position, but that was the direction the wind was headed. Aside from the violence of an eruption and our proximity to the event, I knew the wind played a major role in a person's survival of volcanic events. The ash and gases blown in the wind would create other dangerous conditions. Then I remembered a vacation house that was due south of our position. I told my tour group to stay calm, that I knew a place where we'd all be safe. The mother, Katerina, and youngest boy, Eugene, were crying, and the oldest boy, David, looked like he would start at any moment. The father, Marcus, however, looked as if he were in complete shock.

I picked our path south through the fallen trees and the cracks in the ground. Visibility was becoming an issue, since the already low sun was blocked by ash and steam vents everywhere. Katerina and the boys tried calling 911, friends, and relatives. No could get through. Our path was growing more treacherous. Larger rocks were strewn about. They were still hot, melting the nearby snow. While taking the snow coach up a hillside, the vehicle began to skid, scooping up a rock into the tracks and lodging it there. I revved the engine and shifted gears, but we couldn't go forward or backward.

I muttered to myself, "We'll have to clear the tracks." Marcus' voice cut the silence: "I'll do it." Apparently, he was snapping out of his cataleptic state.

I told him no, it was getting too dangerous – ash, fog, and toxic gases were everywhere. But Marcus already zipped up his coat to the top and stuck his nose down into the collar. "I'll be all right," he told his family. Cracking open the door and squeezing through to keep the ashes out, Marcus climbed out and down to the ground. He found the wedge-shaped rock that had jammed the track, and began kicking it to dislodge the stone.

Suddenly, a tremor hit and threw the father to the ground. A fissure opened in the ground near Marcus and a grayish steam rose up, enveloping the man. He crawled backward quickly and tried to stand, but fell. This was bad, we all knew it. He crawled back to the vehicle's stuck track and began to tug on the stone. It finally fell free. Marcus crawled to the door and his family quickly pulled him inside. I hit the accelerator and began rolling us away from the toxic fumes.

When I felt we were clear of the gases, I stopped the vehicle to check on the patriarch. Marcus was still gasping. His skin burned from the steam, his eyes weak. He began to cough, a deep uncontrollable hacking, then he grasped again for a few moments. Then he didn't inhale. We all waited a moment, stunned. Then I pushed his family out of the way and started doing chest compressions, deep and hard. I felt some slight cracking under my hands – his ribs were breaking – but I pushed on.

Surprisingly, it was Katerina who stopped me. "We have to go now," she said. "Or we all die." A wave of guilt washed over me, as I nodded.

We drove on when we heard more booming in the distance and more stones clattering against the snow coach's windows. But then came a glow out of the darkness. Orange streaks shot out of the gloom. Great globes of glowing hot rock shot through the air, and small dark stones started breaking the glass and roof. Massive ones fell all around. Then the vehicle lurched, struck by a larger piece. The rear window began to crack from the heat. Flames began to rise from the back of the left track, ignited by the lava rock ball.

I grabbed the emergency bag, told everyone to grab their things, and pushed everyone out the door. Only Eugene refused to go. He clung fiercely to his father's body: "We can't leave him! We can't!"

"Take my bag to your mom," I said. "I'll get your dad." I dragged him clear, and joined by his family, and leaned up against a large pine. "We have to hurry to get to the house," I said. "We'll come back for him later" I struck a flare to light the darkness and started leading the survivors in the direction of the house.

No doubt, we would have wandered in circles in the frigid darkness without the compass app in my smartphone. We only had three 30-minute flares, and I used two of them to light our way to higher ground. Ash fell around us and we did our best to keep our mouths and noses covered with clothing. After an hour's hike, and the consumption of two flares, we stopped to rest for a moment. We had only limited gear to begin with, and left some of that behind in the snow coach. We were carrying some basic tools and supplies, sack lunch leftovers, phones, and we had one flare left.

Then Eugene started shivering and crying. He was the worst dressed of the group, and the smallest. He had sweated and was now getting dangerously chilled. I thought about stuffing vegetation into his clothing for insulation, but had a better idea. I found a softball-sized rock which had obviously been hotter earlier – the snow melted near it. I removed my glove and held my hand near it. The warmth was undeniable, then I touched it. It was hot to the touch, but not dangerously so. I put my glove back on and picked up the rock. I asked the boy to unzip his coat. Through his tears, he looked at me as if I were crazy. "Trust me," I said. I placed the hot stone against his sweater and helped him zip the coat back up. After I wrapped him in our only space blanket, he soon looked much better. Soon enough, we all had a

hot stone under our coats.

Finally, we found the road. It looked like a war had passed through. The pavement was broken, cracked, strewn with rocks and boulders, impassable. I had hoped we could flag down a vehicle, but no one would be driving down this road tonight.

It was still many miles to the house – *If it's still standing*, I thought grimly. Katerina started crying, slumping to the ground. Her boys joined in. They were exhausted, terrified, and overwhelmed with grief. They needed rest, and they needed to release their grief. I stood vigil near them.

After half an hour, I noticed that the hot rock in my coat wasn't offering me heat anymore. I let it fall out of my coat and wondered if I could scale the operation up, significantly. I spotted three large volcano-spewed boulders with plenty of radiant heat. I called to the family, "Come over here, I found a place to get warm!" The hot boulders had warmed up the asphalt and ground beneath it. Soon we were sitting in a circle, huddling for warmth. Despite the frigid conditions, we dozed off and on for several hours.

I awoke freezing. Our boulders had finally lost their heat and were now barely warm to the touch. As the faint glow of dawn illuminated the distant east, we divided the little food that we had and ate it. Our remaining water was quickly downed as well.

Even though I wasn't feeling very optimistic, or rested, I suggested that it was time to pick our path toward the house. My thirst had grown after our dry breakfast. The ash would make any snow we

could melt undrinkable. We plodded along carefully through the debris, and finally came to a road cut that was facing north. This spot had a large snowdrift that was covered with ash. A hot rock had plunged through it and melted a column of water that hadn't refrozen yet. The water was ice cold and tasted of dirt and rock, but was each took turns drinking several handfuls to moisten our mouths.

Again, our trek continued heading southeast down the broken road. I thought I could see a spire of wood smoke rising in the distance. I prayed that it meant the home was near and occupied. Perhaps the smoke was from a chimney or a wood stove. I pointed to the smoke. "I think that's it," I told them, and the boys rushed past me to get a better look.

As they crested the last hill, they both stopped in their tracks. I trotted up to stand beside them with their mother close on my heels. The smoke was from the house, more correctly, the ruins of the house. The lawn was full of boulders and the home had burned to the ground. Only one small area was still smoking. This was what we had seen. The boys and the woman looked at me, and in turn I looked at each of them. I didn't know what to say. The next house I knew of was many miles away, and I didn't think we could make it in the condition we were in. We stood there silently for many minutes, and I finally started walking toward the burned rubble. I hoped I could find something that could be useful, something that had survived the fire. The mother and her sons just stood there on the shattered road.

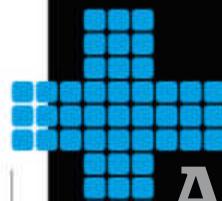




## Conclusion

Major natural disasters are just part of the deal when it comes to living on this planet. Certainly, long stretches of time can pass when nothing bad happens and human populations grow. During these peaceful quiet times, we tend to think we are in charge of everything and able to do as we like indefinitely. But there's always the potential of some calamity that will put us in our place.

As preppers and survivalists, we always want to believe that we could survive any scenario, but in all truth there are some situations that are simply "game over" events. A volcano in your proximity can be one of those events. Poisonous gases, pyroclastic flows, and flying blobs of lava aren't the things you can beat with some duct tape and a "can-do" attitude. But look on the bright side: We pretty much know where volcanic activity is likely to occur. If you're not willing to take the risk, perhaps you shouldn't tempt fate by visiting or living nearby. ☺



# About Our Panel:



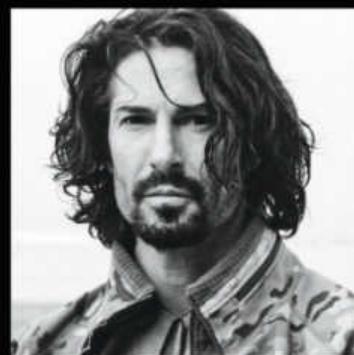
### Jim Cobb

Jim Cobb is a recognized authority on disaster preparedness. He has studied, practiced, and taught survival strategies for about 30 years. Today, he resides in the upper Midwest with his beautiful and patient wife and their three adolescent weapons of mass destruction. His books include *Prepper's Home Defense*, *Countdown to Preparedness*, and *Prepper's Long-Term Survival Guide*. Jim's primary home online is [www.survivalweekly.com](http://www.survivalweekly.com). He is also active on Facebook at [www.facebook.com/jimcobbsurvival](http://www.facebook.com/jimcobbsurvival). Jim offers a consulting service as well as educational opportunities at [www.disasterprepconsultants.com](http://www.disasterprepconsultants.com).



### Tim MacWelch

MacWelch has been a survival instructor for the past 19 years and has trained people from all walks of life – including members from the Justice Department, the State Department, and all branches of the U.S. Armed Forces. He is a frequent public speaker and the author of multiple *New York Times* best-selling survival books, and the new *Ultimate Winter Survival Handbook*. When he's not teaching or writing, MacWelch lives a self-reliant lifestyle with his family in Virginia. Follow him on Twitter @timmacwelch or get more info at [www.advancedsurvivaltraining.com](http://www.advancedsurvivaltraining.com).



### Rudy Reyes

Rudy Reyes is a former member of Force Reconnaissance, one of the U.S. Marine Corps' elite special-operations units. He ran combat missions in Afghanistan then, as part of the 1st Reconnaissance Battalion, helped lead the invasion of Iraq. This mission was documented in the book *Generation Kill* and the HBO adaptation of the same name, which he costarred in. Later, he served as a Defense Department contractor, trained African wildlife preserve rangers, and authored his book, *Hero Living*. For more information, go to [www.rudyreyes.com](http://www.rudyreyes.com).

How would you react to the same scenario as played out by our panel?

Share your plan with us on our Facebook page: [www.facebook.com/OFFGRIDmag](https://www.facebook.com/OFFGRIDmag).

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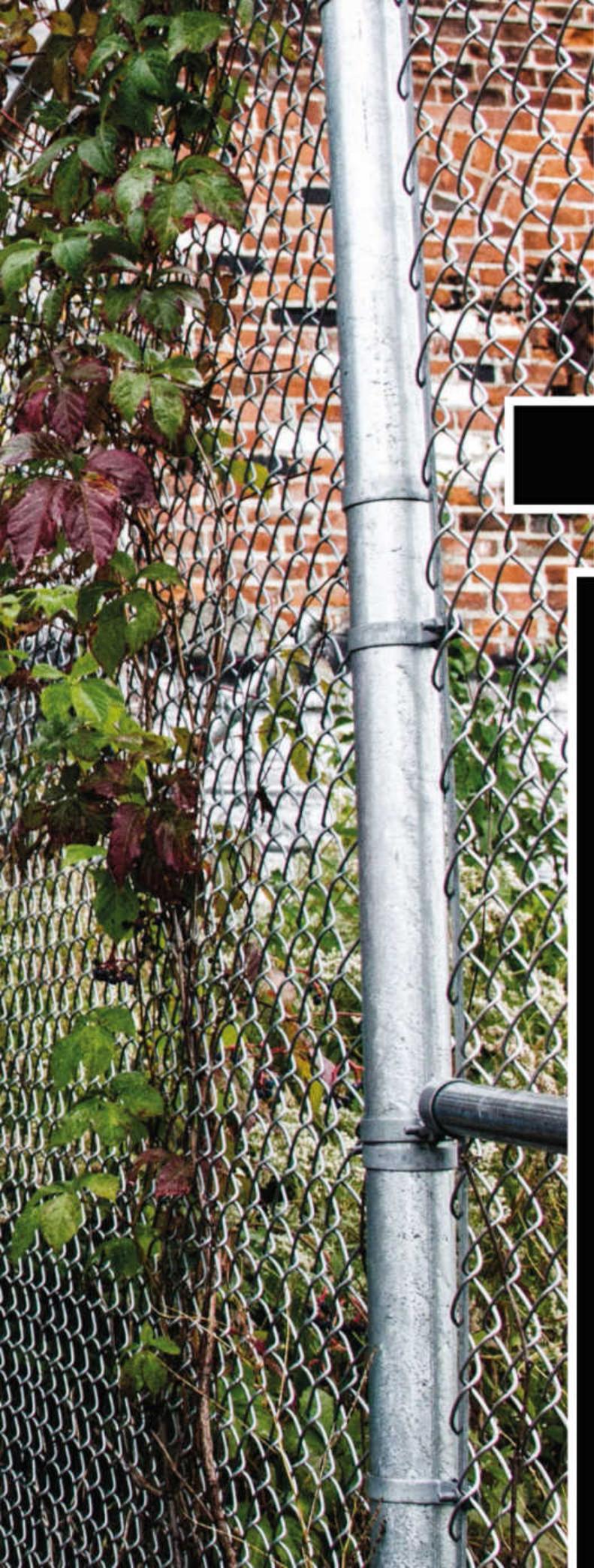
**Psalm 144:1**

Blessed be the Lord  
my Rock, who trains  
my hands for war,  
my fingers for battle

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# BUGGING OUT WITH BABY

We Take a Hard Look at What It Really Takes to Prep for an Infant

Story by Dave Merrill  
Photos by Dave Merrill and Chris Hernandez



e love stories and movies about a lone survivor. A single man in the apocalypse, roaming the ruined world on a dual-sport bike. Maybe there's a canine sidekick. He is always getting into adventures, and while he's not a bad guy, he'll often do bad things for the right reasons. He's the stoic badass underdog it seems every American man wishes he could be.

But you know what he rarely has? Children. In the few stories where there are children, they're always at a useful age and can largely act independently. I don't blame publishers for this. There's not a whole lot of badass gun-fighting action going on when you're changing diapers or coaxing them to sleep, and it's hard to keep a baby alive on a dual-sport.

So, what does our swashbuckling hero do when he has an infant? This is something that I've had to figure out for myself.

Even a quick trip to the grocery store, something that was so cavalierly performed as a bachelor, has turned into an affair that requires more time, thought, and consideration than ever before. A venture *anywhere* now requires logistics and safety checking akin to a pilot going through a preflight checklist. There is a little human with you who cannot survive on its own, likely made from half of your DNA, for whom you are responsible. Now imagine it's a disaster scenario – the potential complications ramp up very quickly, and your learning curve gets considerably steeper.

If you are not currently a parent or never intend to be one, you can still get something out of this article. You may find yourself among friends or family members with infants or small children when the worst happens. Plus, condoms could break – if you can find any in a post-apocalyptic world.

The innocent victims of any large-scale disaster or mass movement of people are infants, and it isn't their fault. You can't verbally reason with them or have a discussion because they can't even control their bowels, let alone understand language. They're needy, complicated, and entirely



unprepared for any situation – hell, many of them can't even fall asleep by themselves. To make matters worse, parents and caregivers of small children can be easy targets for predators.

The raw fact of the matter is that many children die. Sometimes it's just a bad roll of the dice, but all too often it's due to a failure of preparation by the guardians. We prepare because we don't want to rely on outside agencies to see us through. We prepare because historically it gives us a higher chance of survival. So, let's go through some of the lessons learned, often by examining the failures of others.

## The Baby Bug-Out Bag

Right after buying canned ravioli and terrible ramen noodles, one of the first things people try to square away when they start seriously considering prepping is their bug-out bag (BOB). If you're a parent, the good news is that you probably already have at least the skeletal architecture of a BOB for your kid – you just call it something else: the diaper bag.

In fact, just adding some additional items (many of which you may already have in there) and weatherproofing can make it a complete baby BOB, when combined with the contents of your own.

In my house, the major sticking point for the baby BOB was exactly what kind of bag to use. I wanted something that was tough and modular, and so many of the dedicated baby bags are cheap to the point of being disposable. The ability to carry it independently or as an add-on to my own bug-out bag for easy carrying was mandatory. I ended up with an assault pack from Tactical Tailor. Originally designed to be worn on the back or attached to a plate carrier, the shoulder straps can be stowed internally and there are provisions to attach it

to another pack via Fastex clips.

Weatherproofing is important. Even if you have a waterproof bag, packing like components together in Ziplocs or similar not only keeps water out, but helps organize the bag.

Ultimately, you may end up with several bags of different sizes. A larger one for a vehicle where space and weight is less of a concern, and an essentials bag if you have to ruck it.

## Clothing

Infants, being so small, are far more subject to the environmental changes than adults are, so clothing has to be well thought out. It doesn't have to be cute (though my wife disagrees), but it absolutely does have to be utilitarian. Warm clothes for cold weather, and light clothes for hot weather. Children grow rapidly, so while for your own personal BOB you may have a set of X clothes for summer and Y clothes for winter, it's more complex with a baby. Instead of swapping clothes out seasonally, you have to do it every couple of months. Thrift store clothing is perfectly suitable for this application and buying a size up is advisable.

Baby clothes are small, and even smaller if you use a vacuum sealer. This is good, as even the newest parents learn that babies can soil their clothing rapidly.

Blankets and warming layers are often needed even in hot weather. What isn't used for physical warmth can double as a sunshade. If your kiddo is uncomfortable, you'll definitely hear about it, and so will others around you.

## Diapers & Sanitation

Like clothing, diapers come in different sizes as your kiddo grows. As such, they need to be changed out regularly. Even



if you use cloth diapers at home, you're probably going to want some disposables in the diaper bag. My infant BOB is full of nighttime diapers. While they are marginally more expensive, they'll keep the baby drier for a longer period of time. You don't want have to worry about storing soiled diapers or about cleaning until you have to.

Depending on how long of a scenario you're planning for, at some point you may have to worry about cleaning. In a pinch, just about anything absorbent will work as an impromptu diaper or wipe. I have wet wipes and cloth wipes. You may want to include a biodegradable soap or powdered



sanitizer for longer-term prepping.

Specific medical and grooming needs are up to you. A fever reducer, teething medication, nail clippers, and other such items fall into this category. As an example, I have one of those disgusting Snotsucker nasal aspirators in there. She gets stuffed up? I snake the snot right out. The joys of parenting.

## Food and Water

Having water — and the ability to make potable water — is essential in any disaster, but it's of even higher importance if you are traveling with an infant. Babies easily become victims of dehydration through dysentery; diarrhea is the top killer of children in developing nations. Though when you're changing a diaper it may seem like there's an endless supply of liquids in there, it actually doesn't take much to put a baby at risk.

Even if your infant is exclusively breast fed (my wife calls it "EBF"), you're still going to need a lot of water. Why? Well if momma gets dehydrated, she can lose her breast milk.

# Marsupial Carry Options



**Improvised Wrap:** From a pillowcase with duct tape to a torso carry with a beach towel, a quick Internet search will yield a plethora of improvised baby carriers. Knowledge on how to safely and securely carry your baby or small child in an improvised carrier could save their life in an emergency. The example shown here was crafted from three cotton T-shirts.



**Soft Structured Carrier:** Typically made of canvas, a soft structured carrier (SSC) is a durable pack built to withstand heavy use. The buckles and straps are easy to adjust for multiple wearers, and the ergonomic support makes these carriers comfortable for both you and your child. This is the author's preferred carry option. Shown here is a KinderPack ([www.mykinderpack.com](http://www.mykinderpack.com)).



**Ring Sling:** The ring sling is great for situations in which you need to get the baby quickly up and wrapped. With the ring sling you can carry from newborn to toddler age, however, extended wear with a heavier baby can quickly become uncomfortable. The example shown is from Cassiope Woven ([www.cassiopewoven.com](http://www.cassiopewoven.com))



**Woven Wrap:** Although it carries a steep learning curve, a woven wrap is the most versatile baby carrier. It can be used to comfortably carry babies from infant to preschool age, and can even carry an injured adult in a pinch. A wrap can also be used as a blanket or a hammock. This is the author's wife's preference. Shown here is from Oscha Slings ([www.oschaslings.com](http://www.oschaslings.com)).

Very quickly you could have both a hungry baby and a sick companion. Not exactly the trouble you want when you've already left home due to an emerging disaster. For the situation that my wife's milk dries up, or if she isn't there because she's succumbed to injury or been carried off by a zombie biker hoard, I keep a supply of premixed formula in the bag. There are single-serving powdered options you may wish to consider as well.

TV commercials and ads in baby magazines would have us all believe that your little monster needs specially formulated colored goop that comes in a squeeze bag or glass bottle with a side of rice cereal. This is nonsense. With little exception, your baby can eat the same things you do, provided they're smashed or masticated small enough. If push comes to shove, I'll chew a piece of meat or other food first like a momma bird.



## Transportation

If you're in a car, this is a no-brainer. The real trouble starts when you have to ruck it. Sure, you can just carry the baby. And your arms will get tired. And you won't be able to negotiate many obstacles. And you'll never have your hands free.

There are dedicated baby framed backpacks out there, mostly catering to the outdoors crowd. I found a few problems with these: First, the amount of gear you can carry in addition to the infant is dismal. Good luck getting anything

> Those tactical packs have buckles for a reason. Here the author connects his go-bag to his baby's bug-out bag.



▲ The author's bug-out breast-feeding kit.

more than what you'd need for a simple day hike. Secondly, with the baby on your back, you can't wear an additional backpack. Nor can you monitor them. And you're going to get puke all over your head at some point. Ask me how I know this.

I found carrying the baby on a front carrier or using baby wrapping to be the best method. Your hands are free, you can wear a backpack, you can still access your weapons (concealed or otherwise, though your carry configuration may have to be modded), you can monitor your child, and you can keep him or her warm and protected from the environment.

My go-to is a KinderPack. The ride height is comfortable, makes for great visibility, and it's easy to take your infant in and out.

If you look at pictures of tribal women in *National Geographic*, it looks like they just obtained some cloth and went to town. And sure, you *can* do that, but your results won't be as secure or safe. What can look so haphazard is actually carefully crafted. Believe it or not, there is a whole quasi-cultist subculture of baby wearing in the United States. They have forums, meet-ups, Facebook groups, and potlucks, all centering around physically wearing your baby. This is a resource you should pursue for your prepping. Even toddlers and beyond can be carried safely when they're tired if you have the right gear; think of it like a piggyback ride where you don't have to use your hands.

### Stealth Mode

The catch-22 of having an infant: When it's more important than ever that you don't attract attention to yourself, you have a ticking time bomb of noise. Your baby will cry and scream. You can't blame them, it's the only surefire communication tool they have. But invariably there are times you need to be extra quiet. You'll probably know the best way to keep your baby happy, but warm and fed makes for the quietest baby.



Attaching a pacifier and toy to your emergency gear can go a long way when silence equals survival.



# About the Author

Dave Merrill is an Eagle Scout, U.S. Marine Corps veteran, and avid outdoorsman. Spending time in the backwoods canoeing and backpacking sparked his initial interest in survivalism at a young age. This attraction was hammered into enthusiasm by witnessing the effects of catastrophe first hand in developing nations. Dave is also a moderator on the forum for Zombie Squad ([www.zombiehunters.org](http://www.zombiehunters.org)), a multinational nongovernmental organization focused on promoting personal preparation for disasters. And, yes, he's well aware the zombie theme has worn out its campy welcome.

Pacifiers can go a long way, just be sure to dummy cord them to your rig, lest they be lost. While a favorite toy is ideal, you probably can't keep that in the BOB for prep purposes, so try to keep a favored toy in there. My daughter will want the mutant dragonfly-bee thing named Hamilton, but Elephonté Bellafonté the elephant is in the bag.

Depending on the age of your child, a nice thick lollipop may also work. You don't want something they'll choke on, just something to work on when needed. Additionally I keep a teething ring in the bag.

### Have a Team

Having a team makes everything easier. [Editor's Note: For more on group survival, see "It Takes a Village" in Issue 7 of OG.] Since this isn't a pulpy survival novel set in the 1980s, your most likely team member will be a spouse or roommate – and not a bunch of experts at a Rawles ranch. The chance of survival with just you and an infant decreases exponentially the longer you're away from civilization. The ability to take turns caring for an infant while another provides security is a force multiplier, and it only increases with capable and supply-flushed people. But ...

The idea that you can live off the land and out of your pack forever is pure fantasy. If you haven't figured it out by now, the chain of logistical needs for an infant is long. You'll have to seek civilization sooner rather than later if you have an infant. You don't need to last indefinitely, but you want enough to get out of Dodge and get somewhere else on your own terms. ☺



# LABOR DAY

## What If You Have to Deliver a Baby Without Medical Help?

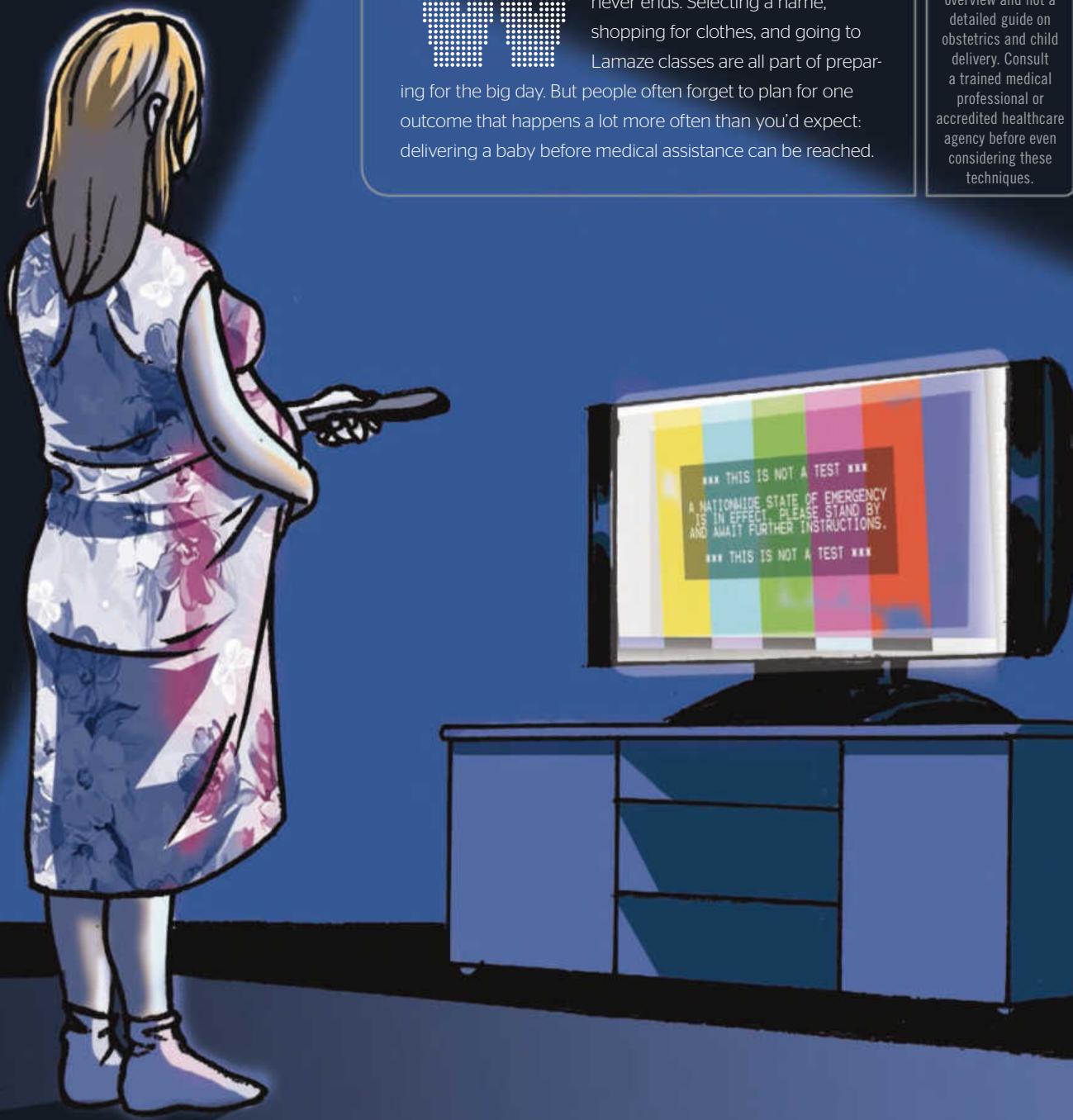
Story by John Schwartze  
Illustrations by Lonny Chant



hen you realize you're going to have a child, it seems that the planning never ends. Selecting a name, shopping for clothes, and going to Lamaze classes are all part of preparing for the big day. But people often forget to plan for one outcome that happens a lot more often than you'd expect: delivering a baby before medical assistance can be reached.

### WARNING!

This article is meant to be a quick overview and not a detailed guide on obstetrics and child delivery. Consult a trained medical professional or accredited healthcare agency before even considering these techniques.



We all hear about those stories on the news – the baby was in a hurry to get here or some complication prevented the mother from getting to the hospital and the delivery had to take place without a doctor or nurse. You may have heard about a woman who recently went into labor at a San Diego Padres game. The delivery came so quickly that it had to be performed at the stadium. Fortunately, the mother was lucky enough to be assisted by a nurse who happened to be there.

But what if she'd been somewhere remote, without the help of that experienced Petco Park staff nurse who happened to be a midwife as well?

Don't think it can't happen to you. If your car breaks down, you're snowed in, or just happen to be somewhere isolated and you have to deliver a child on your own, you need to know what to do. Your child's life may depend on it. Here at OG we believe in preparing for the *when*, not the *if*. Here we've put together some basic how-tos if you're alone and have to self-deliver or help the mother deliver and may only have small household items at your disposal to aid in the process. It should be reiterated that we're not advocating child delivery outside of a hospital setting; however, we know that emergencies do occur when medical help cannot be reached. We took the time to speak to some subject matter experts to outline the steps to take should you be put in that situation.

## Plan Ahead

First of all, it pays to be prepared. Don't assume you'll be able to reach the hospital in time – plan ahead, especially if you're nearing the due date or know you'll be in a location where reaching a hospital in a timely manner may be difficult. Certain airlines and cruise ships impose restrictions on traveling while pregnant and may require written permission by your doctor before allowing you to travel. These vary among companies and should be investigated well in advance. It's best to consult with your doctor before taking any extended travel, especially during the third trimester. Your doctor may recommend against it, particularly if any irregularities have been detected during your pregnancy.

At the very least, whether traveling or staying home, plan out routes to nearby hospitals. If you're traveling, are unfamiliar with the area, or will visit multiple locations, you should research hospital proximity for every stop you intend to make. The last thing you need is trying to figure out where to go and how to get there when labor has begun.

You'll want to prepare a go-bag with spare clothes and any medication you'll need to be on as directed by your doctor to safely continue during and after your pregnancy.



# Pregnancy Myths

## Certain Foods Induce Labor

Rumors still persist that things like drinking castor oil or eating spicy food can induce labor. There is no scientific evidence to prove this. It's still unknown what exactly triggers the labor process to begin. Speculation still exists that having sex can induce labor, but this is still inconclusive.

## Due Dates Are Accurate

Due dates can be inaccurate by weeks and even months. There is no guarantee that the delivery will occur nine months from the date of conception, give or take several days. This is, at best, an approximation. It's hard to pinpoint the exact date, so assume it can happen at any time and plan accordingly.

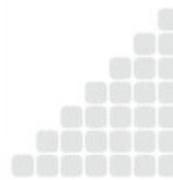
## Baby Gender Develops During Pregnancy

The male's sperm determines the baby's gender. The fetus is not neutral during the pregnancy process and nothing can influence the baby's gender.

Other essentials you should pack are diapers, baby clothes, spare food, baby bottle, and breast pump. Some people even forget that once they leave a hospital, they'll need a car seat for the baby. Best to have one of those beforehand.

Commercial OB kits are great resources to have on hand in preparation for a possible unassisted childbirth. The contents are sterile, available for purchase at virtually any medical supply store or website, and are relatively inexpensive. Assembling your own kit is another option (see sidebar on page 40 for content recommendations). It's advisable that you bring it with you or store some OB kits in places you may be staying. You can never be absolutely certain when the mother may go into labor, and you have to deliver at home, in the car, or in a location where no help is available.

It's also recommended you take an infant CPR course. If you plan on becoming a new mother or father – check out CPR courses in your area so you can better prepare yourself should you need to perform this procedure after the delivery if your baby is having difficulty breathing.



## The Big Day

Let's say you are completely caught off-guard. An emergency forces you and your pregnant wife to leave home in a hurry, and her delivery date is quickly approaching. The next thing you know, you're staying in a secluded place with only basic household items at your disposal. Then the labor process begins, and the likelihood of reaching a hospital or paramedics is low. It's looking like you'll have to deliver the child because you have no other option. What do you do?

First of all, don't panic. Women have been successfully giving birth since long before hospitals and modern medicine existed. Stay calm and pretend you're back in log cabin days when it was common for women to deliver at home. If you have a phone and can call 911, do so and follow the instructions of the dispatcher so they can walk you through the process, and you can report any problems. There are various complications that can occur during the birth process. We can't cover every possibility, such as Caesarean sections, so the process detailed here is with the assumption that you are dealing with a normal baby delivery.

## Pre-Delivery Prep

If you can't call for help and the mother starts going into labor, see if you can quickly assemble the following items in preparation for the delivery:

- › Clean blankets
- › Clean towels or gauze
- › A couple lengths of string or small, clean clamps such as twist ties
- › A clean, sharp knife or pair of scissors

"As labor gets underway, the mother will need to do what's comfortable for her. She may want to walk around, and if it's early enough, she can still eat and drink. Being hydrated and fed are important, especially if the labor is long," says April Schwartz, a 10-year paramedic who has delivered four babies in the field. "Keep track of the contraction intervals. When they are consistently three to five minutes apart for about an hour, the delivery is imminent."

Contractions occurring less than two minutes apart and the mother complaining of the urge to bear down are telltale indications that the delivery process is about to start. If you're seeing these signs, have the mother lie down and get comfortable. Lying down is not imperative, but when she begins to push this will help you be in a better position to deliver the baby. Your role is basically to assist the baby's birth. The process happens by itself and you'll need to help guide the baby as best you can.



## Crowning

Begin by washing your hands thoroughly and wearing sterile gloves if possible. When you begin seeing the baby's head "crown" (presence of baby's head at the birth canal), the birth process is beginning.

"You never want to reach in and grab or pull," says Schwartz. Check to see if the umbilical cord is wrapped around its neck. If the cord appears to be wrapped around the neck, this can be problematic and prevent the baby from breathing. "Place two fingers under the cord and guide it over the baby's head so it's not wrapped, taking care not to force the cord by pulling it," says Joe Ferraro, a 15-year paramedic who has delivered three babies in the field and teaches EMS child delivery at a junior college in San Diego County. "You just want to loosen the cord as best you can and make space between the neck and cord as the delivery progresses."

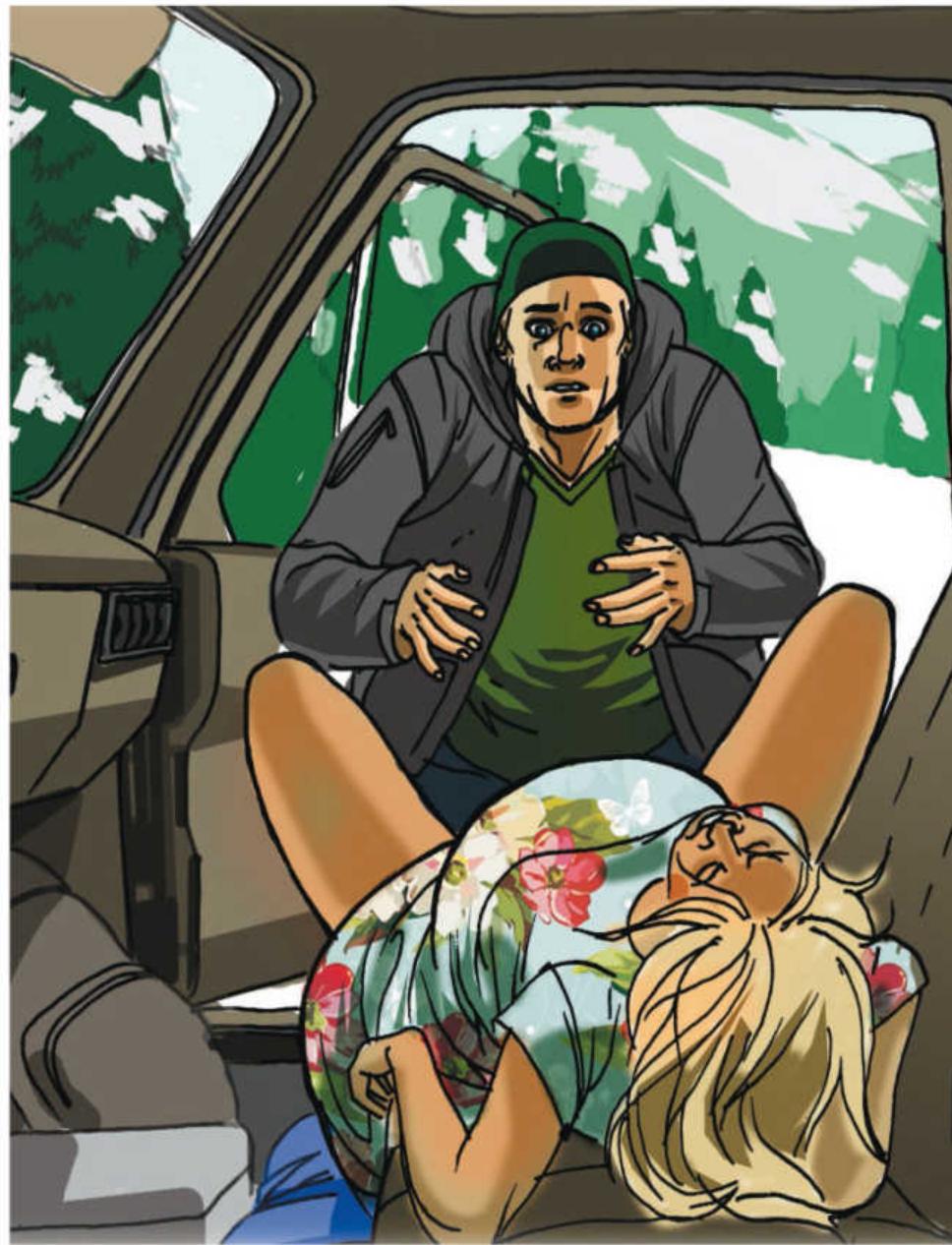
If you are still unable to free the cord after trying to guide it over the baby's head, clamp the cord in two spots with clamps in the OB kit or by tying a couple lengths of string a few inches away from each other on the cord and cutting it in between the two clamps or ties. This will keep the cord from causing a constriction. If you have a sterile knife or scissors, they can be used to cut the cord. Usually the cord is not around the baby's neck and, if that's the case, the delivery will continue to progress normally.

If a shoulder begins to present, you want to apply a minimal amount of unilateral pressure so the other can come out. Tilt the head up slightly so one shoulder can be relieved, and then the other shoulder. Usually the baby is turned sideways during a normal delivery. You do not want to push on the top of the baby's head — their cranial bones are very soft and pressure to the top of the head can cause brain injury. Just apply light pressure so it's not an explosive delivery. Do not pull or push the baby, just guide it as the head is coming out while the mother pushes.

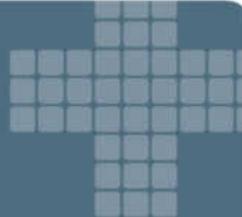
## Post-Delivery Care

Once the shoulders are relieved, the baby will begin to expel rapidly. Help gently guide it out to keep it from falling. Once it's out, you'll want to quickly warm and dry the baby. "Stimulation from drying it lightly, but vigorously will encourage the baby to breathe," Ferraro says. "Once it starts taking its first breaths, it will usually begin crying. The important step at this point is to keep the baby level with the vagina to keep blood flow regulated since the umbilical cord is still attached, unless you've already cut it to free it from the baby's neck."

The baby will appear somewhat bluish after the delivery, which is normal. Check the baby's pulse — a newborn baby's



heart rate should be 120 to 160 beats per minute. "If the baby has a low pulse, appears sluggish, does not open its eyes, start crying, or breathing normally, they may need a few rescue breaths to see if they wake up and jostle," says Schwartz. "You can also try gently smacking the bottom of the baby's feet to encourage breathing." Be sure you're familiar with infant CPR before attempting this — like adult CPR, there is too much that can go wrong if you are inexperienced with the process. If there are respiratory difficulties, you can start CPR on the child or use the syringe bulb in the OB kit to suction the mouth and free it of any fluid or blockages. If the crying has a good strong tone and the baby is breathing normally, suctioning or CPR is not needed.



## OB Kit on the Go

You can buy pre-made OB kits, but if you prepare your own you should at the very least include:

- › Clean blankets
- › Sterile gloves
- › String or clamps
- › Sterile scissors or scalpel
- › Alcohol pads
- › Skull cap for baby
- › Bulb syringe for suction
- › Abdominal pads for bleeding control
- › Dressings for a sterile field

If everything appears to be proceeding normally, prepare to cut the cord. "Generally after the birth, the cord will pulsate for a couple minutes," says Ferraro. "Once it stops, clamp or tie it off 6 to 8 inches from the child and then another clamp 2 to 3 inches from that toward the mother. Once it's clamped, cut between the clamps."

"If no means to cut the cord are available, you can go about a day without cutting it, as it will shrivel up on its own," Schwartz says.

After ensuring the baby is healthy, breathing, and crying, it should be given to the mother for warmth and to begin breast-feeding. This process will stimulate the mother to stop contractions and bleeding, as well as feed the child. "The child will begin to develop passive immunities through the mother's milk," Ferraro says. The baby should be kept skin to skin with the mother as much as possible. The mother's smell will help the baby start to perk up and breathe better. Cover the mother and newborn with a clean, warm blanket. Babies can easily lose heat since their body is not ready yet to regulate temperature. Keeping the baby's head warm is important since they lose heat through their head. Softly applying a skull cap can help keep the baby warm, and these are usually found in an OB kit.

The placenta and afterbirth will deliver itself, and you don't need to pull it out. Once it delivers, the bleeding should be minimal. Try to stop any bleeding with sterile dressing or a clean cloth by applying a minimal amount of direct pressure – don't pack the vagina with any of these materials. Have the mother lay down and put her feet up to keep from

fainting or excessive blood loss.

After the delivery is complete you should do whatever you can to reach a hospital, taking care to move the mother as little as possible since fluid loss will still be occurring.

## Self-Delivery

If you are the mother, and have to deliver alone, you'll need to basically do what's been previously described as best you can. Put your hand down to guide the baby to make sure it doesn't fall. Assuming the delivery happens without complications, try to rest, let the placenta expel, and keep the baby at your level. Cover the baby, keep it warm, and nurse as soon as possible. Women who are alone and forced to self-deliver may choose to do it sitting or squatting – this is not unusual in other parts of the world. After the delivery, try to seek medical attention immediately.

## Conclusion

Aside from these steps, there is not much else you can do until medical help arrives. The best remedy for the situation is to be prepared and not put yourself in a position where you may have to deliver the child without trained assistance. The more you can do to avoid situations where you may be unable to reach help in time, the better off you and your child are. If you're ultimately put in that position, best to stock up on the household items and medical training you might have to rely on. Better to have it and not need it than need it and not have it. ☺

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# UPSTUFF CREEK WITH A PADDLE

**Can a Bug-Out Canoe Be a Viable Transportation Alternative?**

Story and photos  
by Kevin Estela

**T**ew York City is home to approximately 8.5-million people. On any given day, the city has only a three-day food supply if the bridges and tunnels are cut off and resupply trucks are not able to get in. As history has shown, when crisis hits a city, people flee. For the surrounding suburbs, the strain on resources will prove unsustainable. Fortunately, urban crises have a finite life span and people will eventually return – but what can be done until then?

One option is to shelter in place and prepare for looting and civil unrest. Another option is leave the danger zone and return after things quiet down. Luckily for New Yorkers, just north of the Big Apple is the Adirondack State Park. It's home to 6-million-square acres of rugged land, some of which is so remote that access is limited to those with watercraft and the skills to navigate its winding channels.

Here's where the bug-out canoe comes into play. This scenario is not exclusive to the City that Never Sleeps. Metropolitans were established around major waterways, which can provide egress when streets and overland routes become chokepoints. From Puget Sound in Washington to the Okefenokee Swamp in Florida, there is a canoe bug-out location found in every state. If a bug-out is necessary, the panicked and unprepared will flood the roadways, turning freeways

into parking lots. Preppers without off-road rigs might hit the backcountry on foot, but a more effective means of escaping with a larger load is by water.

## Weighing Your Options

"But aren't canoes too heavy and bulky for a SHTF scenario?" we hear you asking. Traditionally done with standard dual-capacity canoes, the carries and portages are often dreaded for good reason – hauling both a go-bag and a canoe can make overland travel painful and exhaustive. However, standard materials like canvas, leather, wool, and wood can be substituted with carbon fiber, Kevlar, sil-nylon, and Primaloft Insulation. And featherweight solo canoes – like the ones from Hornbeck Boats out of Olmsteadville, New York – allow you to cover a lot of ground, and water, with less effort.

There's a stereotype that people who paddle ultralight canoes are granola types who drive Subarus and eat vegan diets. But even the toughest, most-seasoned outdoor adventurer can appreciate how light this type of craft feels after a long carry. In fact, the British Special Air Service (SAS) have used small paddle-powered boats for warfare, and the portability and mobility of these solo canoes afford the user a level of stealth not found in other craft. The open design is an advantage over closed-cockpit boats providing easy entrance

Modern canoes are lightweight, making them practical for recreation and bugging out.





and exit in a hurry.

With a well-thought-out route, any prepper can tap into existing supply stores, cache critical equipment, and spend an indefinite amount of time afield.

## Gear 101

Before setting off though, there are some basic items no boater should be without. In addition to the gear carried in the daypack to address camp needs, this supplemental gear weight can quickly add up. However, if one is willing to make a significant investment in a featherweight canoe, spending slightly more on a quality paddle, life jacket, and dry bags shouldn't faze him too much.

**Paddle:** This style of canoe is best maneuvered with a double paddle (kayak paddle). At roughly \$400, the Werner Paddles Kalliste is a top-of-the-line touring paddle. But, there is a distinct difference between using any heavy economy paddle compared to this ergonomic, all-day, double-bladed stick. For really

A quality water bag is essential for keeping your gear dry.

tight channels, a single-bladed canoe paddle like the Werner Carbon Bandit will make propulsion easier than a double-blade that could snag on low-hanging branches.

**Life Vest:** The ultralight boater should seek out a quality personal flotation device (PFD). The common type II – nicknamed "Mae West" for the busty actress of the 1930s – can work as a floatation device, but it is generally blaze orange, making visual camouflage difficult. Plus, there are better options for form and function. The type II isn't the best design for range of motion, and many modern life jackets, like those from Astral, are designed with canoers and kayakers in mind. Many are equipped with knife tabs and gear pockets for essential safety gear.

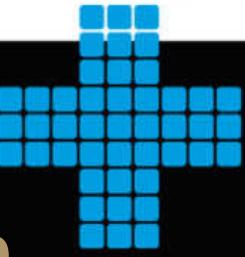
**Water Bag:** The canoe tripper should have a good supply of quality dry stuff sacks like those from Outdoor Research, as well as a water-resistant personal-security kit (filled with items for signaling, fire starting, etc.) within arm's reach. The UST Micro Survival Kit is a good way to start as it comes with an Aloksak waterproof bag, and the whole kit can fit in a PFD pocket.

**Old-School GPS:** Last but not least, a topographical map should be carried in a Ziploc bag. This map should be treated with Thompson's WaterSeal to provide an extra level of water resistance.

## Bugging Out

When it's go time, the outdoorsman should move quickly but deliberately to load his canoe atop his vehicle. The basic bug-out gear can be tucked inside the canoe in storage to





prevent disorganization and unnecessary searching when time is critical. Should roadways be clogged and the designated put-in location be within reasonable and safe walking distance, it's not infeasible to park a vehicle and hoof it with an ultralight canoe over the shoulder.

**Do Your Research:** Waiting until after aliens have invaded is not a good time to figure out where to hit the water. Examine your escape route by physically scouting it out. In general, boat ramp signs found from state to state will give you an idea as to where there's a high amount of motorized boat traffic. These areas should be avoided. The ultralight boater can instead use any hiking trail that leads to water as his boat launch.

A good guide to canoeing in a given area will provide the macro details, while friendly discussions with locals encountered in country stores will fill in the minor details not found in print or online.

**Entering the Water:** Once at a convenient boat launch in a state or national park, the outdoorsman might have to sign in before traveling through the backcountry. Plenty of people "forget" to do this and don't disclose their destination, the number in the float party, or their length of stay. The waterways will take the paddler through different areas of varied occupancy and traffic.

**Canoe Camping:** Some campsites are fed not only by the water, but also by roads that allow RVs and trailered campers.

A reliable bow saw can help clear branches and gather firewood.



## Top 5 Tips to Keep the Hair Side Up

### 1 Understand Primary/Secondary Stability

Boats have primary and secondary stability. Primary stability refers to the initial tendency of the boat to tip over when the boat is positioned upright in the water. Secondary stability is when a boat is riding on its side slightly and the tendency of it to continue over to capsizing or return upright. Many boats have "tippy" primary stability, but come into their own once they are on edge. This gives them a more responsive feel and improved handling.

### 2 Turn into Wakes/Waves

When paddling a small solo canoe, every ripple in the water is felt. While the solo canoe is extremely fast through the water, it can be compromised by big water. Whenever possible, the paddler should turn the boat perpendicular into the wake or waves encountered. The boat has a longer surface to address the wave/wake lengthwise than it does widthwise.

### 3 Trim and Balance Properly

Solo canoes range in size from 9 feet on up. Depending on the design, the paddler will sit somewhere in relation to the centerline of the boat. The further back from the center, the more the paddler will need to offset the balance in the water with extra weight up front toward the bow. This practice is called "trimming." With proper trim and balancing the weight evenly between port and starboard, the boat will perform better in the water.

### 4 Avoid Overloading and Swamping

A properly loaded canoe should have no less than 3 inches of freeboard (the amount of space seen on the side of the canoe between the gunwales and waterline) visible. The more weight carried, the less performance a paddler can expect. Too much weight and the boat may swamp if overcome with a large wave or an accidental lean to one side.

### 5 Move Deliberately

Erratic movements and jerky-style paddling are leading causes of capsizing. Reaching over the side of a canoe, moving the center of balance too far to one side, will cause a boat to flip. Rushing paddling strokes and sweeps also leads to body movement inside the boat and creating instability. Moving deliberately, understanding the slower pace of a canoe, and staying calm will keep a canoe upright.



Other campsites are primitive with no running water, electricity, or facilities – these are generally marked with a yellow placard on a tree facing out from the water.

The resources in the campsites will vary depending on the amount of use it sees. Campsites nearest canoe trail junctions and not far from civilization will be picked over, but as the sites extend deeper into the wilderness, more branches within arm's reach reappear, and signs of use are few and far between.

**Clearing a Path:** Speaking of branches and wood, to reduce your signature and presence in the park, a sturdy bow saw works more efficiently at creating less waste than a chopping tool like an axe or machete. If weight is a major concern, the saw blade can be carried on its own and a buck saw frame can be built off the land. If canoe camping is done in the late fall or early spring, a medium-sized axe will benefit the boater, providing the means to access the dry wood inside seemingly waterlogged firewood.

## Basecamp Basics

In camp, a handful of dedicated kit items will make the extended stay more pleasant.

**Shelter:** A large area tarp, muted in color such as brown or

gray that can blend into the foliage and rocks, makes shelter and living space an easy setup.

**H<sub>2</sub>O Ways:** A water-bottle purifier allows the boater to dip and drink on the go. In cooler weather, boiling in a wide-bottomed pot is the preferred means of water purification as ceramic-filter elements can freeze, causing micro cracks that render the filter useless.

**Gone Fishing:** A takedown ultralight spinning rod with a small tackle box packed with flies, jigs, spoons, and spinners will put fresh panfish (bream, rock bass, perch, etc.) on the dinner plate nightly. [Editor's note: See "Teach a Man to Fish..." in our Summer 2014 issue and "Improvised Angling" in Issue 9 of OG for more ideas on how to catch dinner.]

**Spice It Up:** Though not a life-saving tool, a recommended item is a spice kit to fight off food boredom. While the Adirondack Park, for example, is filled with wild edibles that can supplement the fish and fur food taken from the woods, a spice kit containing salt, pepper, balsamic vinegar, honey, olive oil, and hot sauce (Sriracha all the way!) will take the bland out of your limited menu options.

**Supply Runs:** Since the canoes used for this ultralight bug-out are minimalist in size and carrying capacity, it will be necessary to resupply at some point. Look for roadside stores containing the basics for camp-like coffee, propane, insect repellent, canned goods, and camp provisions. Canoers generally stash their boats, securing them to docks with painter cords or pulling them on shore and out of sight.

**Pre-Staged Cache:** In an emergency, many of these stores will likely be emptied before you reach them. In the off season, these stores might not be open at all. However, if your bug-out plan is to canoe to a remote park, you should create and hide a sealed 5-gallon bucket cache of supplies well in advance. For example, flour, baking powder, and salt are all that are necessary to make backwoods bannock.



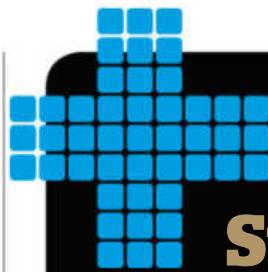


These supplies and others deemed essential to long-term survival can be sealed, stored, and accessed when other gear known to the public has been depleted.

## Conclusion

When crisis strikes and refugees are crowding the streets, the savvy ultralight paddler can escape quietly into the wilderness. The ultralight canoe provides sufficient storage for a bug-out kit and room for other gear acquired along the way. With steady paddling strokes, the ultralight canoe has almost no presence in the water with the exception of a few drips of water coming off the paddle on the recovery of each stroke.

As the city falls into chaos, the overwater route out of the city may be the best option to safety. With the right preparation, equipment, and mindset, the ultralight canoe could be the best bet to take you off the grid. ■



## Stay Dry

A personal dry bag containing emergency essentials should always be carried close to hand while in a canoe or kayak. This bag may or may not be tethered to the paddler's personal floatation device and should be compact and light enough not to affect the buoyancy of the life jacket or range of motion while paddling. The Outdoor Research 5L Lightweight Dry sack is an ideal size and has sufficient water resistance for this application. The contents of the kit should be determined by purpose and reality.

Capsizing is a real threat to the open boater. Inside the personal dry bag, the paddler should carry an immersion kit. This kit should include various fire-starters that are easy to use with cold hands, as well as a flame source such as tinder or a candle. The open flame paired with a reflective blanket to trap heat will help mitigate the effects of hypothermia. These items should have priority placement at the top of the dry bag for immediate access.

A quality water-resistant white-light emitting flashlight should be carried. At night, this will prove useful for obvious navigation, but also to alert larger boats, should they be encountered, of your presence. Signaling devices such as a floating mirror and whistle should accompany this light for daytime use.

Miscellaneous items including a small roll or card of duct tape, spare cordage, high-calorie energy bars, and minor first-aid items should take up some of the extra space in this bag. The rest of the space should contain a spare key for your vehicle, your identification, wallet, and everyday-carry items.

## Tricked Out

The author's bug-out canoe of choice is the New Tricks from Hornbeck Boats – a family owned company that's been building boats in Olmstedville, New York, for more than 40 years.



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**Hornbeck Boats**  
**New Tricks**

**WEIGHT:**  
15 pounds

**LENGTH:**  
12 feet

**BEAM:**  
24.5 inches

**PROFILE:**  
Mid

**MATERIALS:**  
Carbon/Kevlar construction with rot-resistant Pennsylvania cherry wood trim

**FEATURES:**  
Polyethylene foam seat, custom-installed adjustable aluminum foot braces

**MSRP:**  
\$1,695

**URL:**  
[www.hornbeckboats.com](http://www.hornbeckboats.com)



# HUNGER GAMES

Build Your Own  
Survival Stick Bow

Story and Photos by Tim MacWelch



**C**ool leaves of yellow and red pelted my face and hands in the autumn breeze. The wind was in my face, blowing from my quarry toward me. Good, I thought, one more advantage. He wouldn't be able to smell me. I waited for my prey to move clear of the vegetation, as one stray vine or branch could send my arrow careening off target. The shot was lining up perfectly. It was as if I were watching this happen to someone else. I was detached, emotionless, and simply allowing things to happen.

Age-old instincts took hold, and I began to draw the bow. My camouflage was perfect, right down to the bark still clinging to the back of my field-built bow. I drew the nock of the arrow to the right corner of my mouth. Then, to my dismay, the wooden bow made a sound like the "tick" of some large clock. My prey, a fat gray squirrel, looked right at me and bolted faster than my arrow could follow. I muttered a curse under my breath, and then fixed myself on the same thought that my ancestors must have thought on 10,000 failed hunts before me: next time ...

It's entirely true that a field-built bow has a lot of quirks, ticks, and actual ticking sounds as you break-in the wood fibers (or actually break them). But if you don't have access to a bow after wolfing down the last of your emergency food supplies and firing your last round, it's nice to know that you can build your own bow just as our forebears once did. The natural materials for the archery tackle haven't changed at all in 10 millennia — all you need is wood, fiber, glue, feathers, and a sharp point for each arrow.

So maybe you're a hunter, looking to take things to the next level by building your own equipment. Or perhaps you're a serious prepper, interested in yet another backup method of food procurement. Or maybe you just watched the movie *Predator* one too many times as a kid and want to build an alien-slaying primitive bow, worthy of Arnold himself. Whatever the motivation, we're glad you're here. Bow making is an ancestral art form dating back thousands of years and appears in almost every traditional culture on earth. It's a means of hunting for food and fighting back against predatory animals and similarly motivated humans.

Making your own bows, arrows, and archery tackle are also a confidence builder and quite a bit of fun. Read along, and we'll give you the beginner's guide to the tools, materials, and techniques for survival bow making.

## The Setup

You may imagine that you'd need an entire woodworking shop to build a wooden bow, and certainly, that wouldn't hurt. But you can also do all of the important work with a

fixed-blade knife, a multitool, and a billet to strike the spine of the fixed-blade knife that will baton your way through the wood (see "Firewood Fundamentals" in Issue 10 of OG). The knife and multitool could be part of your normal everyday carry gear, and to finish off your bow-making toolkit, carry a few bow strings, some thread, a few fletchings, and some arrowheads.

Modern "glue-on" broad heads or "trade blank" points can be bought from specialty catalogs and websites, and are similar to the ones that were once traded to native cultures by Europeans. If you're particularly handy, you could chip arrowheads from stone or glass. You could also improvise your own bow strings from 550 cord, but a word of caution: 550 cord is a bit too elastic for the job of bowstring, even after stretching and twisting.

Finally, you'll need the bow stick (also called a stave or billet, respectively). This can be a recently deceased sapling or branch from a larger tree. You'll want it dead and dry (but not rotten) for same-day use. If you can wait a few weeks, you could also cut a live sapling and allow it to dry in the shade, ideally with any cut ends sealed with paint or glue to prevent cracking. Do a bit of research to find out about the favored bow woods used by the native peoples of your area. Chances are good that those are your top choices.

In the East, I go out of my way to get hickory and black locust. I've also used ash, oak, maple, and other local hardwoods with good results. For those in the Midwest, look for osage orange, which is excellent. Midwesterners can also try more flexible species of juniper. And for the West Coast, try your hand with yew and cedar.

And while you're assembling your supplies, treat yourself to a strip of leather for an armguard. This may save you from a nasty bruise or large blister if you are shooting with bare forearms. A pencil is handy too, though a chunk of charcoal will suffice. A piece of 100-grit sandpaper and a tape measure will finish out your supplies for your first bow.

## The How-To:

### Step 1: Pick your Stave

This is where you begin striding down the golden path to glory, or the nature trail to hell. You need to select a suitable bow wood species, and it needs to be a good specimen. Start with one of the woods listed above, such as hickory or black locust. Osage orange is a little finicky for beginners. The bow we are creating here is a "quickie" stick bow. It will be more forgiving if the finished bow is longer, rather than shorter.

Start with a dead branch or sapling that shows no sign of rotting (no fungus, and the bark is tightly attached). It could

# Build Your Own Arrows

As you've seen, there's quite a bit of detail involved in the construction of seemingly simple survival stick bows. You'll have to pay close attention to craftsmanship if you're planning to build bows for the next Katniss Everdeen or some kind of dystopian Robin Hood. But now it's time for a bombshell. The bow isn't the hardest thing to make. At the end of the day (or the end of civilization), the bow is just a bendy stick with a string on it. That's all it is, a stick and a string.

The part that really takes some skill to create is the projectile, better known as the arrow. A great bow won't help us to survive without a proper set of arrows to fire from it. And if you thought bow making was hard, try crafting aerodynamic arrows from scratch – out in the woods. Arrow-making is where your biggest challenge lies. But don't let me scare you off. I'm just adjusting your expectations. Our ancestors built fine arrows from raw materials in the wild, and so can we. Here are the basic steps:

**Step 1:** Find slender and straight saplings, reeds, cane, or bamboo that are already arrow shaft diameter ( $\frac{3}{16}$  inch underneath the bark for hardwood, a little thicker for hollow things like cane). Let nature do the work growing the perfect materials. Don't waste your time trying to whittle a log into an arrow shaft.

**Step 2:** Trim and straighten the arrow shafts. You'll need to trim, carve, or sand off anything that is not contributing to the perfect dowel shape. Cut the shafts a little longer than you think you'll need. Finished arrows should span from the nock to about 2 inches past your knuckles at full draw. The material should be dead, but not rotten. Straighten any curved or crooked spots by warming the spot over a fire, bending it a little beyond straight, and holding the spot in that position until cool. This heating (holding) cooling process helps the woody materials to retain a new shape, which could be "straight" if you do it right.

**Step 3:** Saw the notch and add the fletching. Carefully saw a notch (aka nock) about  $\frac{1}{2}$ -inch deep into the end of the shaft (a multitool saw blade is usually the right size for this). It should match the width of your bow string. If using a hollow material, use a wooden plug and an insert and cut the notch in the solid wood – not the hollow shaft (unless you want to see the string cut the arrow in half). Then plan where your feathers will go in relation to the notch. Two feathers will need to line up with the notch, parallel to it.

With three feathers, the feathers will need to be equidistant from each other, with one feather perpendicular to the notch cut. These fletchings can be hard to accomplish without glue, even harder if you don't have a dead bird to provide a good assortment of feathers. Your feathers should match on each arrow. Use all right-wing feathers on one arrow, for example. Keep left wing and tail feathers together as well. Trim the fletching, apply glue if you have any, and tie them tightly in place with whatever string you can scrounge. Make sure the front edge of the fletching (toward the arrowhead) is smooth and well secured, or else it may scratch your hand as it glides across when fired.

**Step 4:** Attach your point. Small flat metal arrowheads would be a wonderful thing to add to your bug-out bag, along with a few proper bow strings. Saw a notch in the front of your arrow, then carve a slight tapering to the end of the shaft for better penetration. Glue the arrowhead in place, and bind it tightly with string. If you don't have metal points, try to make some or use stone or glass points you have chipped into a triangle shape. Failing all that, simply carve a point on the wooden shaft or leave it blunt to strike small game.

be 6 or 7 feet long when cut in the field, and worked down to 5 or 6 feet long for the finished bow. Pick a stave that's relatively straight and free of knots, side branches, and twists. It should also be about 2 inches in diameter at the thicker end.

Again, if you plan to work the wood later, cut a live sapling and dry it for a few weeks, preferably a few months.

## Step 2: Plan Your Bow's Shape

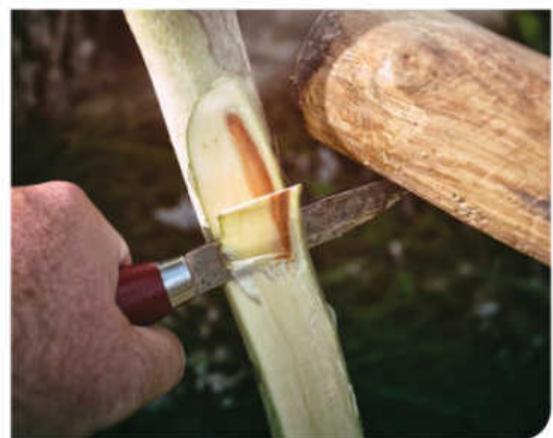
This means that you'll need to find the bow's belly, back, grip, and lay out the limbs. Start by figuring out which way the stick "wants" to bend. Hold the bow stave upright, with one end on the ground. Generally, this is the thicker end on the ground, in the orientation that the sapling once grew. Grab the top of the stave loosely with one hand and push on the middle of the stave. The stick should naturally swivel to indicate its tendency to bend. The outside of the bend is known as the "back" of the bow, and it is the side of the bow that faces your target. The inside of the curve is called the "belly," and it faces the archer.

Be careful not to mix up these terms (or sides) as you work. Since the back receives the tension when the bow is drawn, damage to the outer growth ring on the back can cause the bow to break. Don't carve, hack, or saw into the back of the bow.

Finally, figure out where your grip will be. Find the middle point of the stave and mark out a 6-inch grip area in the middle. The belly area of the grip will remain unworked (for now). The wood above the grip is called the upper limb, the wood below is the lower limb.

## Step 3: Shape the Belly

Bend your prospective bow again, pushing on the grip area from the belly side of the bow. Do this repeatedly



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and study the way that the upper and lower limbs bend. Generally speaking, the thicker limbs don't bend as much and will require more carving than the thinner limb. Look for areas that bend and spots that don't. Mark the areas that don't bend. Rest the bow stave against a tree, ideally in the fork of a tree. Use your fixed-blade knife and a baton to begin removing wood from the belly of the bow where you have marked them as stiff. Thin down the areas that don't bend, and for now, leave alone the sections that do bend.

Your goal for this rough shaping process is to leave the back of the bow untouched, and to get the limbs to bend equally by thinning down the belly of the bow. Go slowly and bend the bow often to check your progress. The grip and limb tips (ears) shouldn't bend at this point. Once the stave is bending equally and looking a bit like a bow, you're ready to put a string on it to more accurately see its action. Remember that thick staves require a significant amount of carving, but they typically yield stronger bows. And conversely, slender staves may only need a little belly shaping, but they're often weak bows.

#### **Step 4: Cut Your Notches (Carefully)**

This can be the part where neophyte bowyers destroy all of their hard work. Notch cutting on the bow ears must be done carefully. Use the saw on your multitool to cut small matching notches on the both sides of each bow ear. Cut them on an angle, thinking about the direction the string will pull from each ear toward the grip. Do NOT saw into the back of the bow, just cut into the sides. These cuts should be shallow, just enough to seat the bow string. Attach your string to both ears. It doesn't need to be tight yet; this is simply for testing. Don't be tempted to do your best *Hunger Games* pose yet either, drawing a rough-shaped bow is a great way to shatter it!

#### **Step 5: What the Hell Is Tillering?**

Chances are good that you've never heard the word "tillering" before. It's simply a word that means thinning and shaping, usually in the context of woodworking. And that's what we are doing next.

Cut off a nearby tree branch, about head height, leaving a stub. You could also use some similar way to affix the bow grip. Pull downward on the bow string, gently at first. Carefully study how the limbs bend. You want to see each limb bending equally across its full length. You also want to make sure that the limbs bend equally – compared to each other. The two limbs should look like a mirror image of each other when bent. Use your pencil again to mark areas that are not bending enough. I like to shade them in aggressively, then carve away the marks completely, yet cautiously. It's best to take your string off when carving, so you don't accidentally nick it or cut it.



Arrowheads are modern glue-on broad-head, trade blank metal point, a stone point, and a beer bottle point.





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# Anatomy of a Bow

**Back:** This is the side of the bow that faces away from you as you pull on the bow string. The back of the bow is toward the target. If a bow breaks, the back will often produce splinters of wood, as the back is under tension due to the wood fibers pulling away from each other.

**Belly:** The belly of the bow is on the inside of the bow, facing you as you pull the bow string. If a bow breaks, the belly may hinge or fold while breaking due to the fibers being compacted in the belly. In modern archery, the belly is now called the "face."

**Bowyer:** A person who makes bows.

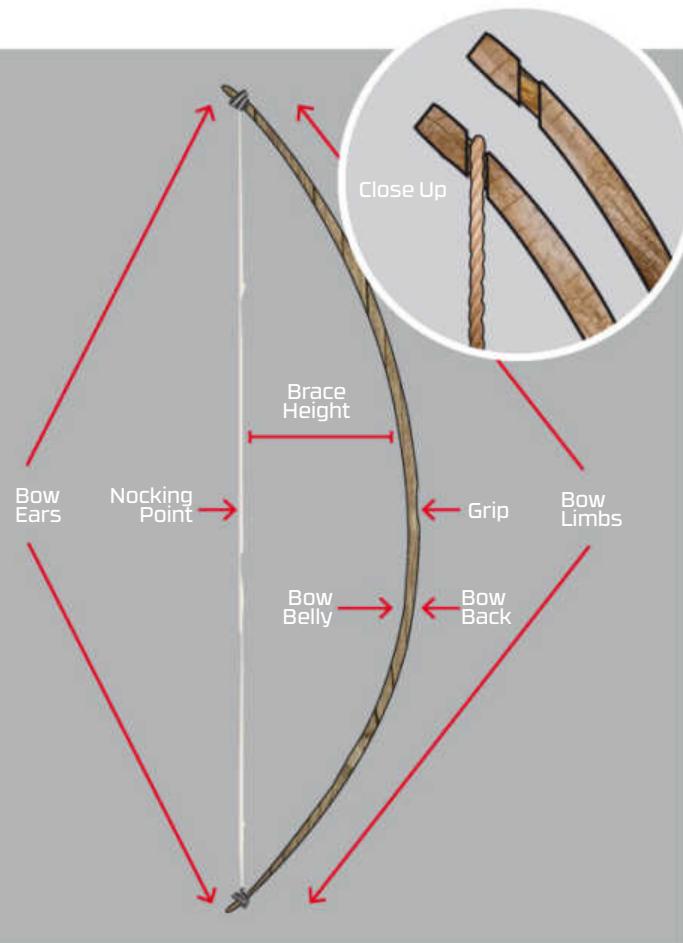
**Brace height:** The distance from the grip to the string when the bow is strung. The Old English term is "Fistmele," which is the length of your hand when giving a "thumb's up."

**Ears:** Each end of each limb is referred to as an ear, basically the last couple of inches on each end of the bow.

**Grip:** The grip is the middle of the bow where you actually grip it.

**Limb:** Each end of the bow is considered a limb, so every bow has two limbs, even though it may be made from one limb of a tree.

**Stave:** A solid stick of wood that will be made into a bow, also referred to as a "bow stave."



Tillering may take a while, perhaps hours, but this is how you make a bow. Recheck your strung bow frequently, and continue tillering until you feel you are pulling the string nearly to your draw length. Draw length is measured by holding a bow and pull the string back as if to fire and arrow. Measure the length between the grip and your jaw. Most draw lengths are around 28 to 30 inches for adults. Shorter folks and kids have shorter draw lengths, taller folks have longer ones.

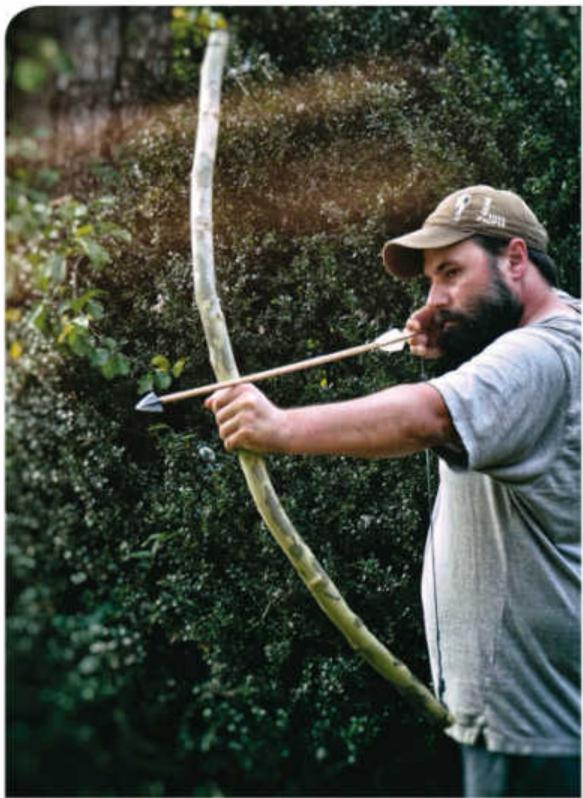
## Step 6: Finishing

Continue tillering, checking your limb bend and checking your draw length until you are feeling confident that your bow feels like a real bow. Sand down or carefully carve the belly of the bow to smooth it and remove any "chop marks" from your baton work. This is critical to eliminate weak points. Chop marks tend to create hinge points in the belly, which lead to breaks in the bow back. If you're curious about the poundage of the bow, you can test it now by getting a 5-foot piece of 2x4 lumber.

Use a tape measure and pencil to mark the inches on the lumber, up to 30 inches. Stand the lumber vertically on a standard bathroom scale. Set the bow grip on top of the

lumber and pull the string down across the numbers you've marked. When you've pulled down on the string to a full draw length, check the scale reading for a good estimate of your draw weight. You can use a 25- to 35-pound draw weight bow for small-game hunting and target practice. You'll need a 40- to 60-pound draw weight for bigger game animals.





## Conclusion

Bow-making and arrow-making are some of the most challenging feats of craftsmanship you can take on during a survival situation, but they are also proven and vetted game changers. The skills of bow and arrow making, and archery itself, could make you an invaluable member of your team or group. With a serviceable bow and a few well-built arrows, it's possible to take down a variety of game animals (some of which are almost impossible to take without projectile weapons).

After taking small game like rabbits, opossums, and raccoons, you can feed yourself for a day. By taking deer and large game, you can feed yourself for a month or provide for a whole camp of people for many days. In darker times, archery could even be used as a means of self-defense, but let's all hope it doesn't come to that.

Archery and bow-making, like many skills, carry a big learning curve, so it's best to start working on them now, rather than later. And despite all the blisters, splinters, and tears, this can be an immensely rewarding pursuit and quite possibly – your new favorite hobby! ☺

## SOURCES

Hunting & Gathering Survival Manual > [www.amazon.com](http://www.amazon.com)  
 Three Rivers Archery Supply > [www.3RiversArchery.com](http://www.3RiversArchery.com)  
 Traditional Bowyer's Bibles > [www.boisdarcpress.com](http://www.boisdarcpress.com)

# Take Aim and Fire!

We could write a whole book on traditional bow marksmanship and aiming ... and still not cover it all. But if you can stay alive long enough to get in lots of practice, you can learn a lot through observation and experience. So, to keep you alive that long (hopefully), here are the bare-bones basics.

First, you'll need to figure out your dominant eye. You can use the same trick that many early shooters use. Outstretch your arms, make a triangle or circle with both hands, and pick a distant object to look at through your hand opening (both eyes open). Take turns closing your right eye and left eye, to see which one is still looking at the distant object. The eye that's still on target (or sort-of on target) is your dominant eye. If you are right-eye dominant, hold the bow grip in your left fist and shoot across your left knuckles. If you are left-eye dominant, hold the bow grip in your right hand and shoot across your right knuckles. This puts your dominant eye looking right down the shaft. I'm right handled, but left-eye dominant. As such, I've been working on my "southpaw" shooting. Let me tell you without hesitation, eye dominance matters more than hand dominance.

Next, eliminate the variables. Make a mark on your bow grip so your hand always grasps the exact same spot. Then tie a wad of thread around your bow string to create a nocking point that matches the top of your grip. Don't tie your bowstring itself into a knot to create this lump in the string. That's too much stress on the bow string. Use a separate string tied in place.

Then start shooting the bow at a soft target, like a decaying stump. See whether you are more accurate with your arrow nock over or under the nocking point on the string, and try different finger placements. And for safety, wear a glove on the hand that is holding the bow, so that rough fletchings don't scratch up your hand.

Finally – practice, practice, and practice. Make certain that you draw the bow to the same spot for each shot. Try to keep your back "flat" when you are at full draw, and parallel to the target and arrow's path. And then practice some more.

## Making Bows = Breaking Bows

It's been said by wiser bowyers than me, that a fully drawn bow is a stick that's almost broken. This is an unpleasant thing to imagine, especially when you have to invest so much time and labor into the process of bow-making. Yes, the lovely bow that you have carefully crafted could break at any time. It could be a hidden flaw in the wood, or more likely, an error in craftsmanship. But there are a few ways to prevent untimely breaks and cracks in your finished stick bow:

- Never over-draw your bow (bending it farther than it was meant to bend).
- Don't cut through the growth rings on the back of the bow.
- Taper the belly of the bow smoothly. Abrupt changes in the bow's thickness create "hinges." These are spots where the bow limb literally folds and creases, leading to breakage.
- Protect the finished bow from dings, cuts, scrapes, and scratches. Don't use the bow as a tool, pry bar, walking stick, digging stick, etc. Damage to the bow's surface creates weak points, and weak points lead to breakage.

Oil the bow with grease from your first kill. Wipe some warm animal fat into the bow limbs to keep them supple, prevent cracking and prevent moisture from soaking into the bow. A dry bow is a snappier bow, while a damp bow is more sluggish.



# GET UP ABOVE IT

## A Buyer's Guide to Bug-Out Hammocks

Story and Photos by Rob Curtis



leeping outside is an incredible nocturnal communion with nature. Wind, animal, and insect unite in a subtle symphony that's easily mistaken for cacophony by the sore-backed and restless.

It doesn't matter how many times we've set up a campsite, there are always those sites that defy comfort and waste our time. Aside from the injured sleep resulting from a rogue root beneath a ground pad or the slope we didn't sense while setting up our tent, there's the time it takes to set up the tent. Time on the trail is precious, and if we find

a way to get five more minutes of meal prep, or better, a little more Z's time, then we're all over it.

Hammocks check both boxes, in this case. We can set up a simple hammock in under three minutes without much practice. Some of the more feature-rich designs can take longer, but compared to pitching most one-man tents, hanging a hammock is almost always faster. But, more importantly, a hammock delivers exactly the same sleeping surface every time, regardless of the ground beneath it.

We know. You don't believe us. Hammocks are for sailors and island-time naps, not overland travel, you say? Read on.

## Architecture

Hammock designs range from a simple sheet of suspended fabric to modular sleep systems.

There are dozens of hammock styles out there. We're going to break hammock designs into three families for this article: unstructured hammocks, structural ridgeline hammocks, and spreader bar hammocks.

Unstructured hammocks are fixed at each end and hang with the tension provided by the anchors and the body lying within. This is the simplest hammock design and is hard to fall out of once inside.

Integral ridgeline hammocks are the same as unstructured hammocks except they add a structured line across the top that connects the endpoints of the hammock. This creates a tensioned ridge that suspends bug netting and rain flies above the occupant and also maintains a uniform droop regardless of the length and angle of the support ropes. These are also tough to fall out of.

Spreader bar hammocks use a bar or pole at each end to support the hammock from center to edge along its short axis. This makes the hammock feel more like a mattress and keeps the edges from rolling in. But, it also makes for a tippier feeling hammock.

## Speed

The hardest part of setting up a hammock may be finding a pair of suitably spaced trees. Once we've found a couple of stout trees spaced about 12 to 18 feet apart, set up is fast. A simple hammock can go up in seconds. Adding mosquito netting, if not integral, and guying out

fly lines adds a couple minutes, if needed. We can hang the Hennessy Hammock Jungle Explorer with its integral bug net and fly and being toes-up in about three minutes on a good evening. Morning get-out is fast, too. Untie one side and stuff it in a bag as you walk. By the time you've reached the other tree, you're ready to roll.

## Knots

Don't worry, if you don't want to learn knots, then plan on shelling out a few extra bucks for some daisy chain webbing and a couple of carabiners. The longer the webbing, the more options for hanging the hammock. Just keep in mind, the longer the run from tree to hammock, the more droop will be introduced.

## Temps

The ground is a heat-sucking beast. In the height of summer, the earth can help cool us off. But, more often, it'll draw too much heat in temperate environments and wake us up with a predawn chill, which is why we always haul a ground pad, even when the weather's warm.

Sleeping suspended in the air with only a few millimeters of fabric to buffer the ambient temperature means a more comfortable sleep in hot weather. But, anywhere other than the tropics will leave you wanting some insulation since that thin layer of fabric and a slight breeze is a recipe for convection cooling that'll turn your lips blue on a summer night in New England. Laying an inflatable ground pad inside a hammock is one way to do it, but an underquilt is a more packable solution.

## \$ BUYER'S GUIDE

### HAMMOCK

**Grand Trunk**  
**Kryptek Highlander**  
**Double Hammock**

	<b>TYPE</b>	Unstructured Hammock
	<b>WEIGHT</b>	20 oz (Hammock & steel 'biners)
	<b>COLORS</b>	Kryptek Highlander, Typhoon, Yeti
	<b>MSRP</b>	\$100
	<b>URL</b>	<a href="http://www.grandtrunk.com/kryptek">www.grandtrunk.com/kryptek</a>

#### NOTES

Grand Trunk was founded by a couple of guys who met as they were backpacking through Thailand. Maybe their mutual dislike of eight-man bunk rooms, shared bathrooms, and hostel housekeeping rules brought them together. Who knows? But, we know that led them to make a line of simple, highly packable hammocks that would let walkabout travellers sleep anywhere they could find a couple of trees and a cool breeze. The Kryptek Double Hammock is at home on the beach or in the woods. Its subdued colors and Kryptek camo will reduce your visual signature in wooded environments and will reduce the chances of waking up to a gun in your face. The hammock is big enough to hold a couple, or a person with some gear. With just one person, the sides are tall enough to wrap around and completely conceal the occupant. Don't care about hiding? Tuck some of the fabric under your elbows and feel the breeze. Like all open-top, unstructured hammocks, this one can be hung with the ends close together to make a super recliner.

The integral stuff sack doubles as a stash pocket when you're in the hammock. That's it for frills; Grand Trunk keeps it simple and strong. This hammock can hold 400 pounds. The fabric feels like a heavy parachute and doesn't stretch much, if at all.

Hanging the Kryptek Double with the included 'biners and nylon rope is simple enough, but opting for the new Trunk Straps (shown, far right) make things easier and faster, though it adds a bit of weight and bulk to the kit.

**ACCESSORIES:** Trunk Straps, 12 oz, \$30

**PROS:** Simple design, excellent camouflage.

**CONS:** Will roll you like a burrito.

## Bugs

A mosquito can bite through fabric. The weave of thicker fabrics can form a labyrinth that will blunt a syringe-like stinger, but even tightly woven, ultralight fabrics used in hammocks will offer mediocre protection from biting and stinging insects. The best protection is a double bottom. This isn't two tight layers of fabric, but a layer that you lay on with a looser layer of fabric that forms an air space too great for an insect's stinger to span.

A bonus of this design is insulation. Empty, the space provides a buffer between you and the ambient air. But, packing a lofty blanket in there, or a thin reflective pad (the kind used inside a car's windshield to prevent faded dashboards in the summer) adds an effective layer of uncompressed insulation without needing to carry an inflatable pad.

Once you have your ass covered, you'll want to have something overhead to keep the biters at bay. Some hammocks have built-in bug netting, some offer it as an accessory that wraps around the hammock. Both work. One offers speed of setup/breakdown, the other modularity.

## Rain

Keeping the rain and sun at bay in a tent isn't that different than it is on a tent. Both use a rain fly. Some flies are a breeze to set up, hooking to the hammock that's already guyed out. Some are more involved and require ground stakes.

## Fight the Bowl

Lying in a hammock invites visions of curled-back sailors swaying in the breeze. Not so in modern hammocks. All

of the hammocks we present are made to accommodate a diagonal sleeping position. If the hammock straps are 12 and 6 o'clock, then you're laying across the hammock with your head at 1:30 and your feet at 7:30. Lying this way, the hammock is nearly flat. No bowl bottom.

## Ditch the Tent?

If all of the above doesn't allay your fears of sleeping suspended, we haven't even talked about the practical aspects of a hammock when living rough in uncertain times. A hammock has a tiny footprint compared to a tent. It also leaves a smaller signature after it's removed. There's no big square area of crushed brush highlighting your passage when your tent is a hammock.

Oh, the downside? Well, there's very little storage inside a hammock. Some have pockets in the ridgeline or on the edge. But, your pack and other gear is on the ground, under the fly. If you hang the hammock low, it's like a huge tent atrium. So, it's not bad. But, if you're used to laying stuff around you in a tent, you're going to have to adjust.

The only other issue that comes to mind when comparing camping hammocks to tents is the amount of people you can fit in them. There's no such thing as a party hammock. Well, not one that we've heard of. You can find a double hammock, but it's not for the unromantically involved to share.

All things equal, and depending on the location you're planning to visit, you can replace a tent with a hammock system and never look back. If you've got a hammock system and trees, you're in business. Forget the tent. You'll never miss it. Lighter, faster, smaller. Hammocks are it.



## Hennessy Hammock Jungle Explorer Zip

### HAMMOCK

	<b>TYPE</b>	Structural Ridgeline Hammock
	<b>WEIGHT</b>	59 oz (Hammock, Fly, Snake Skins, Straps)
	<b>COLORS</b>	Bark
	<b>MSRP</b>	\$280
	<b>URL</b>	<a href="http://www.hennessyhammock.com">www.hennessyhammock.com</a>

#### NOTES

Tom Hennessy nailed the hammock tent. His line of suspended shelters sets the standard for camping hammocks as far as we're concerned. From compact and ultralight to roomy and heavy duty, Hennessy has a lot of bases covered. The Jungle Explorer is one of the company's latest designs. It falls on the larger, burlier side of the lineup; it's got room for a big person and some gear, if you don't mind waking up with your pack trying to share the same space as you. Like all Hennessy hammocks, the Jungle Explorer Zip is a sleep system made up of the basic hammock with integral bug netting, integral hanging ropes, and rain fly. A line connects each of the ropes to form a stressed ridgeline that not only holds up the bug net and fly, but also adds structure to the hammock so the floor sags the same amount regardless of the way the hammock is hung. This means you're getting the same bedding experience whether the hammock is hung from trees 12 or 18 feet apart. The double bottom means insects aren't biting through the fabric, and it gives you someplace to stick some insulation. A Kifaru Woobie shoved in there kept the chills at bay during many mid-Atlantic summer nights. Hennessy sells the Radiant Double Bubble insulation pad that fits in the slot and offers a low-fuss layer of reflective insulation. It's a great option for static site setups, but we found it adds too much bulk to the system when breaking things down.

Set up is fast. Pass the included tree wraps around a tree and use Hennessy's figure-8 knotless lashing method to secure the hammock ropes to the tree wraps. Shock cords with big clips make guying the sides out pretty painless. You can hook the fly guy lines to the two hammock guy lines for even simpler setup. Our hammock came with a set of semi-integral stuff sacks Hennessy calls Snake Skins (shown). They stay on the ropes when the hammock is in use and are pulled down to enclose the hammock and fly when it's time to move out. With the Snake Skins pulled down, the whole shebang can be unashed from the tree straps and shoved directly into a pack.

**ACCESSORIES:** Radiant Double Bubble Pad XL, 14 oz, \$35; Snake Skins Stuff Sack, 3 oz, \$20

**PROS:** All-in-one design has everything needed for any situation appropriate for a hanging shelter, speedy setup, and breakdown for a full-featured hammock shelter. Rain fly can be set up to maintain some visibility.

**CONS:** No hammock-only, compact/lightweight configuration.



## Lawson Hammock Blue Ridge Camping Hammock

### HAMMOCK

	<b>TYPE</b>	Spreader Bar Hammock
	<b>WEIGHT</b>	68 oz
	<b>COLORS</b>	Green
	<b>MSRP</b>	\$170
	<b>URL</b>	<a href="http://www.lawsonhammock.com">www.lawsonhammock.com</a>

#### NOTES

There are a few reasons why the Blue Ridge Hammock has gained a loyal following. It's a great value. It does double duty, working both as a hammock and as a full-featured bivy sack. The Blue Ridge uses a split aluminum spreader bar to make a broad, flat sleeping platform that speaks to many campers. Unlike unstructured and even structured ridgeline tents, the spreader bar design doesn't have climbing sides and feels a lot like sleeping on a cot. For \$160, you get a hammock, a rain fly, and a bug net. That's a solid value for a shelter that can be used in the air and on the ground.

Pulling the hammock out of its stuff sack, all you have to do is unfold it and snap the spreader bar halves together before you hang it. You're on your own for suspension lines. We used a daisy chain and 'biner setup, which adds a few bucks to the bottom line, but makes setup and teardown so easy that we feel it's worth it. The door is a U-shaped zipper that can be opened from either end. Unzip it and put your butt on the edge and scoot back. As comfortably flat as the sleep surface is, this is the only hammock we felt could roll on us.

Getting past that feeling didn't take long, though. Inside the hammock, there's plenty of room to spread out. The surface is so flat that you could easily get away with using an inflatable sleeping pad as insulation. You'll find a couple of pockets for odds and ends and a place to hang a lamp, should you decide to read after dark and telegraph your position to anyone within eyesight of your hasty camp. The rain fly won't lie on your face thanks to a couple of arch poles that also hold up the rain fly. The fly provides excellent protection from the elements, but it also completely blocks the outside view, reducing situational awareness to near zero.

**PROS:** Dual use, comfortable.

**CONS:** Can't see anything with the rain fly down, tippy.



## HAMMOCK

**Kammok**  
**Roo**

	<b>TYPE</b> Unstructured Hammock
	<b>WEIGHT</b> 24 oz (Hammock, 'biners)
	<b>COLORS</b> Red, Blue, Green, Purple, Gold, Sahara (shown)
	<b>MSRP</b> \$99
	<b>URL</b> <a href="http://www.kammok.com">www.kammok.com</a>

## NOTES

Kammok wins the most technical hammock category. It's refined the design of the simple hammock and added a ton of utility with its modular approach. The company starts with a proprietary rip-stop fabric called LunarWave, triple stitches the seams and hold the ends together with a Dynema sling. That's some strong stuff. There are lashing points around the perimeter to hang gear and attach accessories. The modular approach to the Roo means you can save some weight and space (and cash) on trips that don't call for bugs or rain; though for all but beach naps, we'd want to have both of these, if not in use, at least close by. The Roo's bug net, called Dragonfly, slips over the hammock and is suspended on a separate cord that you tie between anchors above the hammock. This ridgeline can also support the Glider Rain Fly, if used. The Glider provides a ton of coverage and has a slick trick up its sleeve. Each corner has a filtered, threaded tap for collecting rainwater in water bottles (shown, far left). The corners have drawstrings that help channel water to the taps.

Another unique Roo accessory is the Koala Underquilt (shown, left). This is a 750-fill power, water-resistant down quilt that attaches to the underside of the Roo to provide a comfortable cocoon down to 30 degrees F. We're showing the Koala Underquilt with the red side out, but it can be set up with the gray side out for a less flashy appearance.

We found setting the hammock up using the included gated 'biners and the accessory Python Straps straightforward. Wrap the straps around an anchor and slip the end through then snap the 'biner into one of the 18 connection points on the daisy chained webbing.

**ACCESSORIES:** Python Straps, 12 oz, \$29; Glider Rain Fly, 23 oz, \$230; Dragonfly Bug Net, 10.5 oz, \$75; Koala Underquilt, 24.5 oz, \$329; Firebelly Quilt, 23 oz, \$299

**PROS:** Modular approach makes for a scalable system. Only carry what you need. High-quality components.

**CONS:** Setup of the full system is involved.



## \$ BUYER'S GUIDE

### Nemo Equipment Tetrapod SE

#### HAMMOCK

	<b>TYPE</b>	Structural Ridgeline Hammock
	<b>WEIGHT</b>	24.4 oz (Hammock, Straps, Fly)
	<b>COLORS</b>	Gray, Green
	<b>MSRP</b>	\$400
	<b>URL</b>	<a href="http://www.nemoequipment.com">www.nemoequipment.com</a>

#### NOTES

Nemo Equipment did their homework on this shelter. Aside from a comfortable sleeping position the other things you'll want from a hammock are a speedy setup and teardown. We think Tetrapod's built-in tensioning strap is a great way to set up the tent quickly without dicking around, trying to get just one link tighter, as we always do on the daisy chain setups. Wrap a runner around the anchor any way you want and attach the hammock with a 'biner. Then, yank on the free end to tighten up the hammock as you like. Because of the way it's made, you can use an alternate method if you find yourself without a runner for the anchor. Unthread the webbing from the buckle, girth hitch it around the anchor, and run the free end back into the buckle. A downside of this method is rethreading the webbing in the dark if light discipline is an issue. But, it's good to have options if when something goes wrong. It's also got a two-way stuff sack so you can set up and break down the hammock without losing track of the bag. Just leave it on the support webbing as shown, left.

The shelter uses a stressed ridgeline to hold the hammock's shape, support the integrated bug mesh and hold the included rain fly up. The zippered entrance is easy to open and close and once inside, there's plenty of room to lie diagonally for that sweet flatness. The edge of the tent serves as a pocket. Put stuff in the corner and the fold keeps it there, out of the way. If you need a Berry Amendment compliant hammock, here you go. If you don't, or you don't know what the Berry Amendment is, then you can wait until early 2015 for Nemo to release the commercial version of the Tetrapod SE for about \$250.

**PROS:** Efficient setup and teardown.

**CONS:** Needs more elegant guy line system for rain fly.



### Yukon Outfitters V2 Ultralight Camo Hammock w/ Suspension Straps

#### HAMMOCK

	<b>TYPE</b>	Unstructured Hammock
	<b>WEIGHT</b>	28 oz
	<b>COLORS</b>	UN Camo
	<b>MSRP</b>	\$99
	<b>URL</b>	<a href="http://www.yukon-outfitters.com">www.yukon-outfitters.com</a>

#### NOTES

Yukon Outfitters didn't start on a Thai beach, but on the banks of the Big Salmon River in Alaska. One of the company founders lost his coat at the outset of a spring fly-fishing trip. He was forced to buy an expensive raincoat that wasn't worth the price and decided on the spot to make affordable gear that would hold up to the riggers of travel and modern adventures. Yukon Outfitters was born. As far as the V2 Ultralight Hammock, we aren't sure what "UN Camo" is (the only UN camo we've ever seen is solid blue), but it looks like some kind of digital Flecktarn pattern. The coated nylon fabric is strong, but offers zero breathability. In warm weather this hammock has the potential to become a small, sweat-filled pool. The looped, gathered ends are secured with a double box-stitched piece of webbing that should provide end-of-days strength. The hammock is cut wide enough to lie flat, across the long axis, providing good comfort. Like all unstructured hammocks, the sides are going to ride up, something to get used to if you end up with this style of hammock.

We didn't get hands-on with any of Yukon's tent accessories, but we see they offer a very reasonably priced rain fly and bug net. If you're looking to save a few bucks and get a decent setup, keep an eye on discounters for Yukon gear. We saw Yukon products on Amazon.com selling anywhere from 33 to 70 percent off MSRP in the past year, so keep your eye out and you could get some good gear at even better prices. The big draw for Yukon, though, is their location. The company sews these hammocks in Tennessee.

**ACCESSORIES:** Walkabout Rain Fly, 14 oz, \$40; No Fly Zone Bug Net, 10 oz, \$40

**PROS:** Made in the USA.

**CONS:** Coated nylon is uncomfortable.



## HAMMOCK

**Therm-A-Rest**  
**Slacker**

	<b>TYPE</b>	Unstructured Hammock
	<b>WEIGHT</b>	16 oz
	<b>COLORS</b>	Blue, Green, Gray
	<b>MSRP</b>	\$70
	<b>URL</b>	<a href="http://www.cascadedesigns.com">www.cascadedesigns.com</a>



## NOTES

The Slacker Hammock came out last year with a bug net and a set of hanging straps. This year, the company will complete the hammock enterprise with the addition of a rain fly and a hammock warmer. The entire ensemble will run you \$340, but you get the ability to pick and choose the components you want to bring. The Slacker Hammock itself is a step above the other unstructured hammocks in the group owing to the combination of triple stitching on the endpoints, zigzag hemming, perfectly executed bar tacking on the hanging loops, and most importantly, the soft, breathable, polyester fabric that feels almost like a cotton bedsheet. While polyester might not be as strong as the nylon used in some hammocks, it's more than strong enough. And, polyester handles sunlight better than nylon, so it should last a while longer, provided you do your part to take care of it. The strap system is pretty slick, too. Girth hitch it to an anchor and use a 'biner to attach the hammock and apply tension.

The Bug Shelter (shown, far left) is unique among the hammocks here because it adds an integral ridgeline to the Slacker when installed. Slip the net over the hammock, connect the 'biners on each end and you've taken the stress off the hammock and put it on the webbing ridgeline. Might as well leave it on all the time and reap the benefits, such as that consistent hammock droop. The bug shelter extends to the ground, affording a place to keep your stuff without the worry of bugs getting into it. The hammock warmer, coming in the spring, is a thin, durable sheet of reflective material that rides under the hammock and helps take the chill out of the dead of night.

Therm-A-Rest has a well-thought-out hanging sleep system in the Slacker. It's the best combination of versatility, utility, comfort, and value in the unstructured camping hammock category.

**ACCESSORIES:** Suspender Hanging Kit, 9 oz, \$30; Bug Shelter, 16.3 oz, \$80; Rain Fly, 21 oz, \$90; Warmer, 7 oz, \$70

**PROS:** Love that polyester fabric.

**CONS:** Limited visibility when the hammock sides ride up.





# BACKYARD SURVIVAL TRAINING

Practice for Worst-Case Scenarios in the Comfort  
of Your Own Home Before They Happen

By Jim Cobb



any of us would love to be able to take a few weeks off and travel to a remote, privately owned forest where we can practice wilderness survival skills without fear of violating a city ordinance or, perhaps worse, incurring the wrath of our homeowners association. The reality, though, is that unless we're somehow picked for the next round of contestants on some goofy reality show, we're not going to be doing a lot of primitive camping any time soon. We simply don't have the time for an extended trip. And if we did, most of us can't afford it (not all of us have the scratch to fly to Jasper National Park in Canada or the rain forests of Costa Rica).

Fortunately, these skill sets don't require a background of towering pines and the gurgle of a babbling brook to be successfully learned. Many of them can be practiced right in your own backyard. Doing so has a milder impact on your wallet — plus, if things go awry, help is likely just a scream away.

## Fire-Making

The ability to reliably make fire under both ideal and adverse conditions is one of the most important survival skills to master. Plus, you earn massive field cred when you're able to get a fire going where others have failed.

**Backyard Bonfire:** Even if there are city restrictions on what you're allowed to burn and when, I doubt there are any rules at all dictating how the fire is started. Many homeowners have invested in some sort of patio fire pit in recent years, whether it is a permanent brick structure or just a metal bowl that gets moved off to the side when the kids are playing basketball. Either way, they work great for practicing your pyrotechnic talents.

**Spark Selection:** Try using a variety of different fire-starting tools and techniques, from the reliable butane lighters and strike-anywhere matches to ferrocium rods and perhaps even the bow drill. Don't overlook the magnifying glass or the fire piston, either. Practicing these techniques in the backyard is a great way to learn which are easiest for you to use and under what conditions each seems to work the best.

**Tinder Finder:** If you lack natural materials to use as tinder, mimicking what you'd find out in the field, search for "Michigan Wildfire" on Facebook. Their fire kit consists of about a dozen different types of natural tinder, a full pound of it total, along with a custom-handled ferrocium rod. The materials, such as birch bark and chaga fungus, are all separated and labeled, making it a great tool for learning how to use varied materials in fire-making.

**Fuel Placement:** Try out different fire lays, too. Most of us are familiar with the teepee fire lay, where you build a cone of sorts out of kindling over the tinder bundle. How about the Dakota fire hole? You won't be able to use your patio fire pit for it, but it can be very useful out in the field. Dig a hole about 10 inches deep and maybe a foot in diameter. Dig another hole the same depth but half the diameter, about 18 inches from the first one. Then, dig a tunnel to connect the two holes.

Sounds like a lot of work, I know, but it's worth it in the end. Build your fire in the larger hole. Once it starts burning well, it will draw air through the second hole, causing the fire to burn hotter and consume the fuel more efficiently. This results in far less smoke being generated, making the Dakota fire hole a great option for keeping things on the down low. Plus, it is quite easy to lay a few green branches across the fire hole, on which you can place your pot or pan for cooking.





## Off-Grid Cooking

Make no mistake, cooking over an open flame outdoors is as much art as it is science. While campfire cooking traditionally means impaling something on a stick and holding it over the fire until it burns, with the right tools and some practice you can cook just about anything. The following are some considerations.

**Coal Cooking:** First things first, though. You don't cook over the actual flames, you cook over the coals. Those provide a much more consistent temperature. Flames will reach up and scorch the food, leaving the outside burnt to a crisp and the inside cold and raw. What experienced camp cooks will do is get a good fire going, then once it dies down, scrape the coals to the side for cooking.

**Side Burner:** Another thing to keep in mind is that most grills, unless they have a side burner, are horrible when it comes to boiling water. They are very inefficient because the heat kind of goes everywhere rather than focusing on the bottom of the pot. You folks who sprung for the side burner feature, though, are good to go.

In theory at least, anyone can heat up a can of soup over a campfire. But, if your outdoor cooking experience tops out at turning hot dogs into briquettes, you have some practice ahead of you.

**Cookware:** For potentially long-term situations, consider investing in at least a couple of cast-iron pots, such as a deep skillet and a small Dutch oven. While you can sometimes get by with using your normal kitchen pots and pans, they typically aren't made to withstand the higher heat generated by a campfire. They may warp or bend, and plastic handles will almost certainly melt. Good cast iron isn't cheap but, if cared for properly, it will last several lifetimes.

## Wild Edibles

I will readily admit that I am a die-hard carnivore. A meal just isn't a meal unless something had to bleed before it hit my plate. That said, if I'm hungry and the only food available has leaves on it, I'll be filling my plate with greens and possibly coming back for seconds.

Being able to not only recognize wild edibles in your area, but knowing how to properly use them can be a crucial life-saving skill. Rather than trying to properly identify a whole ton of plants most of the time, concentrate on being able to identify a short list of plants all of the time. The goal here is to learn what you can put into your belly to stop the missed meal cramps, not give a botany lecture.

**Edible Education:** Start by visiting your local library for a few books on wild edibles in your area. Two references I highly recommend are the *Peterson Guide to Edible Wild*



*Plants* by Lee Allen Peterson and *The Forager's Harvest* by Samuel Thayer. See also "Urban Foraging" in Issue 8. An important thing to remember is you'll need to be able to identify the plants at various stages of their development. Many guides only show what the plant looks like when it is ready for harvest. By knowing what the plant looks like as it grows, you can spot it earlier and note the location for later.

**Plant Compatibility:** Another important aspect of wild edible gathering and use is that just because the plant is edible doesn't mean it will necessarily agree with you. We all

You'd be surprised at what you'll find in your backyard once you know what to look for.



Learning how to use a knife effectively is a survival requisite.

have certain foods that just don't get along with our digestive systems. I'm not talking about being lactose intolerant or having issues with gluten. I'm referring to the fact that many of us are no longer able to wolf down Taco Bell at 3 a.m. without some serious repercussions. The same basic principle applies with wild edibles. Each person's body is different, and the body changes over time. Learn what you can eat safely now, when medical help, as well as working indoor plumbing, aren't issues.

**Continuing Education:** Another possible learning resource is your local county extension office. They are the folks who manage the Master Gardener programs. Reach out to them and find out if they have someone who is well versed in wild edible identification who could work with you for an afternoon or two. You might be surprised – there could be existing classes you could join.

## A Simple Recipe

An easy dish to make while you're camping – whether off the grid or in your backyard – is something this author likes to call "campfire potatoes." Here's the recipe:

- › Tear off a sheet of aluminum foil about 18 inches long. Spray the inside with nonstick spray.
- › Wash a few red potatoes, then leave the skins on, and dice them into roughly 1-inch cubes or so. Lay those in the center of the foil.
- › Add a couple of pats of butter and sprinkle with salt, pepper, and garlic powder to taste.
- › Bring up the long sides of the foil roll them together down to the potatoes. Roll up the ends to make a nice, tight little package of goodies.
- › Toss this on hot coals for about 10 minutes, then flip for another 10.
- › Remove from the coals and carefully unwrap the foil. If the potatoes aren't tender, wrap it back up and put it back on the coals for a bit longer.

Add some hamburger, peppers, and other goodies before tossing it on the coals, and you have a meal fit for a grid-down king.

# Grid-Down Grub

If it's truly a long-term grid-down situation, you're going to want to try to salvage the refrigerated and frozen foods as best you can. It might turn out that the best thing to do is to cook as much of it as possible and have a little feast. That's preferable over letting it all just go to waste, right?

Meat can be cooked on the grill, of course. Invite the neighbors over and have a cookout. Hopefully they'll have buns that match what you're serving. Hot dogs can be sliced for hamburger buns, but burgers on hot dog buns is troublesome.

**Frozen Fries:** Many of us have one or more bags of frozen French fries in our freezers. Here is one way to make use of those fries before they defrost: Take a sheet of foil, lay it on a counter, and spray one side with nonstick cooking oil. Toss a few handfuls of fries on the foil, then wrap them up. Cook this over hot coals for about 20 minutes or so, moving it around every now and again to shake up the fries so they don't get burnt. Once the fries are about done, open the foil and pour a can of your favorite chili over the fries, then sprinkle with cheese. We always have a bag of cheddar or Colby mix on hand for quesadillas and such. Wrap the foil closed again and put back over the coals for five to seven minutes. When the cheese is melted and the chili is warmed through, unwrap the foil and grab a fork.

**Frozen Veggies:** Of course, you can always make vegetable soup with all of your frozen beans, peas, and such. Add some pasta noodles to boiling water, toss in chicken bouillon and veggies, then simmer until the pasta is tender. If you cook up a chicken breast and dice it for the soup, so much the better.

**Premade Dough:** Refrigerated dough, such as the kind that scares your mother-in-law when you pop it open, can be cooked over the fire, too. Take the dough and roll it into a snake, then wrap said snake around the end of a stick that is roughly an inch thick. Hold it over the coals and turn it slowly to avoid burning.

**Dairy:** Milk should be consumed before it goes bad. Eggs will last a fair length of time without refrigeration so put those toward the bottom of the "Need to cook before it might kill you" list.

Take a peek in your freezer and refrigerator today. What foods do you routinely have on hand that you'd want to cook up before they go bad? How would you prepare them?



## Tracking

**Animal Analysis:** Identifying animal tracks is a great way to learn what animals are living in your area and thus would be available as a potential food source, should the need arise. Back to the library you go, this time for a couple of books on animal tracks. *The Peterson Field Guide to Animal Tracks* is a good place to start, but don't overlook the children's section of the library, too. Many of the advanced guides have so much information it can be overwhelming. You probably aren't interested in the mating habits of the Eastern Humped Whatsit; you just want to know what made the tracks that lead to and away from your upended garbage cans.

**Get Outside:** One great thing about winter is that snow allows for easier tracking. Rather than just staying bundled up by the fireplace, only venturing outside when your paycheck is threatened, take some time to get out there and practice tracking. Learning to identify prints is just the first step – you need to practice following the trail as far as you can. This is something you can read about, sure, but you'll never be any good at it unless you spend some time outside.

## Physical Fitness

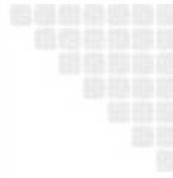
*As he recalled later, this is right where he lost most of his readers.* I know, exercise isn't all that high on the fun list for most people. But, the fact is, poor physical conditioning will be a hindrance in a true survival situation. I'm not saying you need to be a fiend about lifting weights and running laps until you are in such good shape that you cause professional wrestlers to stop in their tracks. But, if you can't walk from the kitchen to the upstairs bathroom without getting winded and there's no underlying health issue at work, you need to get your heart rate up a bit every now and again.

**Get a Checkup:** Before embarking on any sort of exercise routine, you should probably get the all-clear from your physician. The last thing you want to do is end up hurt or worse when you've finally decided that while a sphere is indeed a shape, it isn't the shape you want to be in any longer.

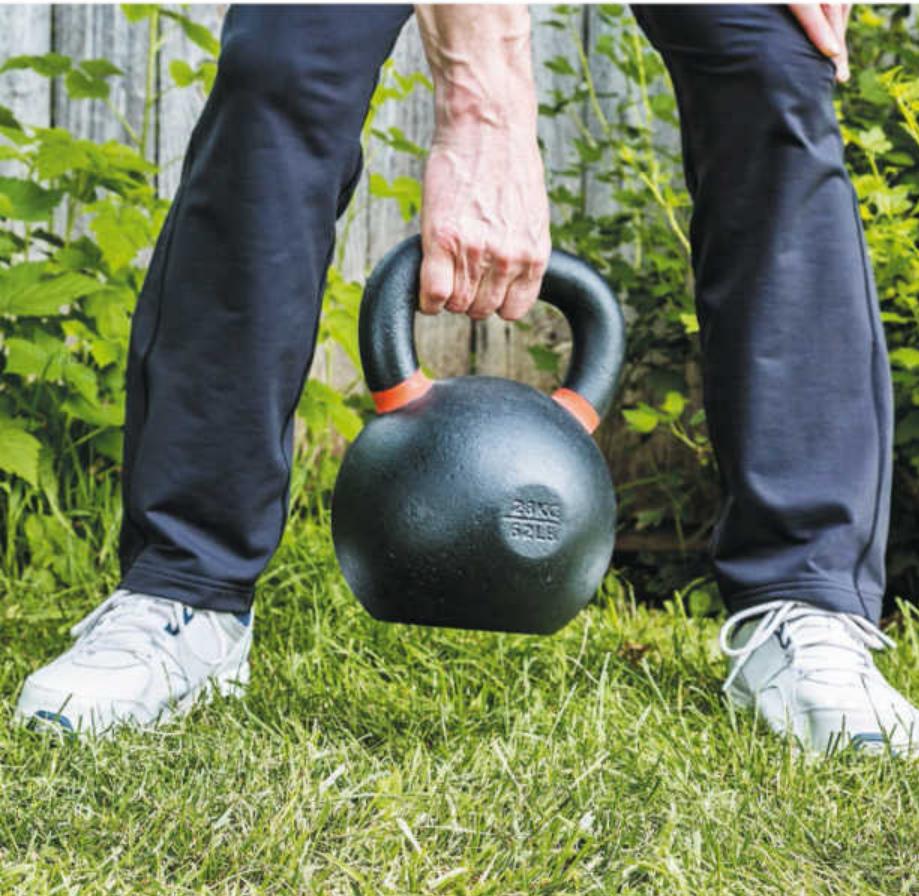
**Move Your Butt:** If it's been years since you put on gym shorts, start small by walking the perimeter of your yard. Or, do a few jumping jacks on your back patio — anything that will get you up off your butt and working up a little sweat. (Check out the *Health* column in this and every issue of OG for more fitness ideas.) You don't need to invest in a fancy workout machine or even a set of free weights. Join your kids in a game of tag. Play catch with your family.

Grab a length of clothesline and start jumping rope. If your neighbors look at you funny, remind them that if the zombies do come, you don't need to outrun the brain-eaters, you just need to outrun the neighbors.

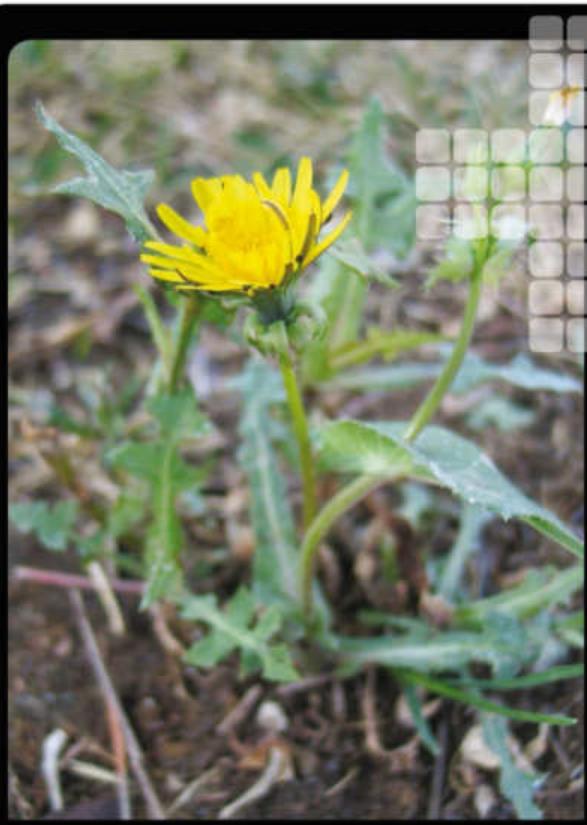
No matter what your living situation might be, you should be able to find some space for practicing some survival skills every now and again. It might require some creativity on your part, but being able to think outside the box is a survival skill in and of itself. Don't get wrapped up in finding reasons you can't do these things. A true survivor never gives up. ♦



Dust off the weights and kettlebells: You can't survive a calamity if you can't climb the stairs without getting winded.



marekullas/stockphoto.com



## Common Backyard Edibles

Dandelions are universal. There just aren't too many places where dandelions don't grow, at least not in the United States. The entire plant is edible, despite the general "milky sap means bad" rule of thumb.

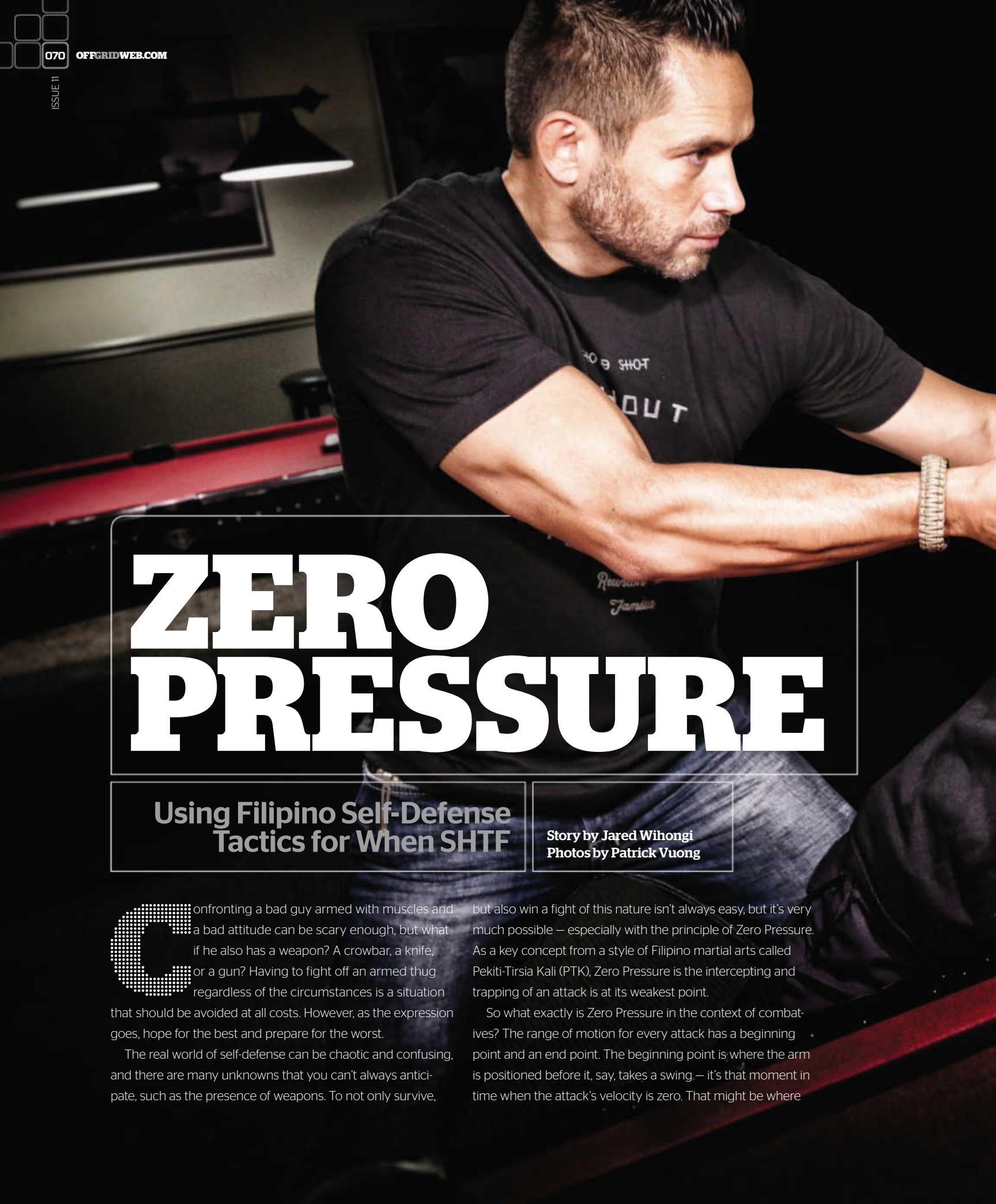
Garlic mustard is the bane of oh so many homeowners. It is extremely invasive and will take over a flower bed in no time at all. A great way to get rid of it is to eat it. All parts of the plant are edible. The leaves have something of a bitter taste so some folks like to cook them or at least mix them with other vegetables rather than just eating them raw and alone.

Clover can be eaten raw, though the taste is improved a bit by boiling. Up to you whether you want to check for any having four leaves before munching them.

Many plants tend to get bitter as they grow and plantain is no exception. The leaves are best when fairly young.

Wood sorrel grows almost everywhere. The roots make a good alternative to potatoes after boiling. The leaves are typically eaten raw.

As you research wild edibles in your area, don't be surprised if you find out a fair number of them are usually thought to just be invasive weeds. That works in our favor, though. The gardening rule of thumb has always been if it pulls up hard, it is a plant. If it pulls easy, you're holding a weed.



# ZERO PRESSURE

**Using Filipino Self-Defense  
Tactics for When SHTF**

Story by Jared Wihongi  
Photos by Patrick Vuong

**C**onfronting a bad guy armed with muscles and a bad attitude can be scary enough, but what if he also has a weapon? A crowbar, a knife, or a gun? Having to fight off an armed thug regardless of the circumstances is a situation that should be avoided at all costs. However, as the expression goes, hope for the best and prepare for the worst.

The real world of self-defense can be chaotic and confusing, and there are many unknowns that you can't always anticipate, such as the presence of weapons. To not only survive,

but also win a fight of this nature isn't always easy, but it's very much possible – especially with the principle of Zero Pressure. As a key concept from a style of Filipino martial arts called Pekiti-Tirsia Kali (PTK), Zero Pressure is the intercepting and trapping of an attack is at its weakest point.

So what exactly is Zero Pressure in the context of combatives? The range of motion for every attack has a beginning point and an end point. The beginning point is where the arm is positioned before it, say, takes a swing – it's that moment in time when the attack's velocity is zero. That might be where

## WARNING!

Warning! The concepts shown here are for illustrative purposes only. Seek a reputable instructor before attempting any techniques discussed or shown in this story.



the arm retracts so that it can gain more power in the swing, or a stationary non-retracted position that is harder to see coming because it's not as telegraphed. Then there is the point where the attack reaches the end of its range of motion, and the velocity of the attack again reaches zero velocity. These two positions are components of the principle of Zero Pressure.

There is also a point between beginning and end where the attack will reach its maximum velocity or 100 percent. Obviously, that's the point where your ticket could get punched and should be avoided whenever possible.

There is another part of the attack that can also be measured from zero to 100 percent, and that would be from the shoulder to the tip of the weapon (which could be the muzzle of a gun or it might just be a fist). If you look at the arm and weapon as one measured unit, the further you get from the shoulder, the faster the unit is moving. Maximum velocity or 100 percent will be at the tip of the weapon, and velocity decreases as you get closer to the shoulder. For the intents and purposes of this principle, the shoulder is the pivot point or position zero.

## Up Close or Far Away

When dealing with weapon-based attacks, there are ultimately two positions that will give me the highest likelihood of saving my bacon. I need to get completely outside of the range of the weapon altogether, or I need to get completely inside the most effective range of the weapon or 100 percent velocity, as close to the assailant's shoulder as possible, position zero. This is a philosophy that many martial arts will describe in different ways, but the analogy I like most is that of a hurricane. The safest places to be in a hurricane are either completely outside the hurricane's wind field, or right in the hurricane's eye.

This concept might even be compared to a pendulum swing. The points of the pendulum where there will be the least kinetic energy are the beginning and end points of a weight's trajectory, and the portion of the swinging cord closest to the pivot point.

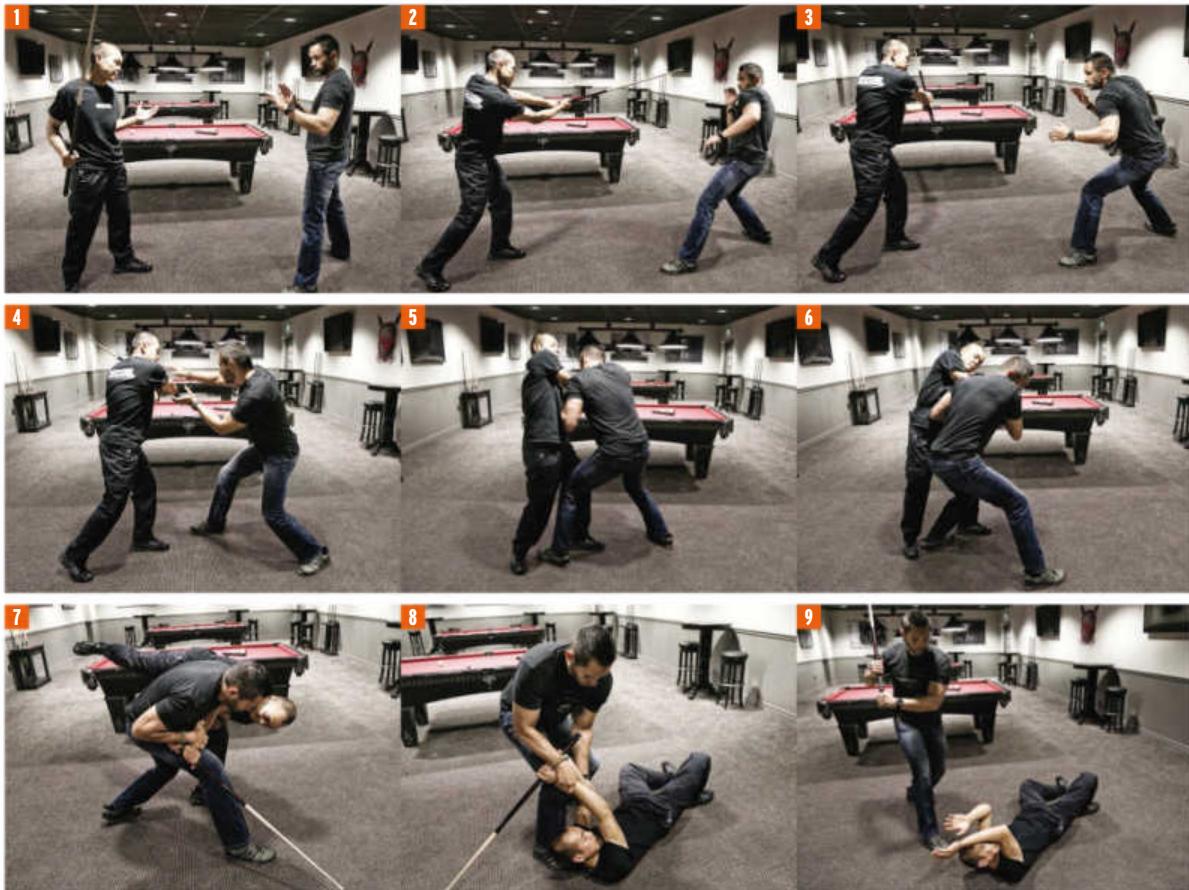
If only the reality of self-defense were that simple.

The dynamics of human physical confrontation offer too many variables, and to attain true Zero Pressure one must also employ forward momentum and constant pressure to the weapon-bearing arm. Failure to do so will result in losing control of the arm and allowing the assailant to bring his weapon back into the fight quicker.

For example, if I were successful in jamming or trapping a knife attack, a bad guy could retract his arm and stab again and again until he gets me. However, if I move forward to Zero Pressure, I will reach a point where they cannot retract their arm any further without moving backward, which is why my forward momentum is important so they can't free themselves. Or in the case of a firearm, if I were successful in deflecting and grabbing a thug's arm or the weapon itself, I can keep the muzzle pointed away from me so long as I move forward, but if I stop and he moves backward, his arm will straighten and the muzzle will point at me.

I like to compare it to the military doctrine that is commonly taught with regards to countering a close-range ambush. Moving backward and recoiling away from the ambush will be a liability and put you in a position where you're off balance, on your heels, and unable to achieve or maintain Zero Pressure. You must push forward. Don't be under the illusion that you will always be strong enough to push your opponent backward, the idea is that even if he's pushing you backward, you're able to temporarily immobilize his arm or lock it into a trapped position to prevent further damage while you work toward your next counter tactic.





**End Point of Zero Pressure:** After talking down his aggressor doesn't work, Jared Wihongi slips out of range of the swing before crashing in and trapping Conrad Bui's arms. He then takes Bui down, strips the pool cue, and can now counterattack, scan for other bad guys, or make an escape.



## TOP 5 Rookie Mistakes To Avoid When Defending Against an Armed Attacker

**Running Backward:** You'll never outrun someone who's running forward if you're running backward – plus it causes all kinds of balance problems.

**Think That Being Armed Is Being Prepared:** Being armed yourself is only half the battle. Training is paramount.

**Access a Weapon Too Soon:** Think self-preservation first, then look for the opportunity to grab a weapon, whether it's something you're carrying or an improvised weapon.

**Staying Unaware:** Failing to recognize improvised weapons in your environment could be a fatal mistake.

**Block Your Way to Victory:** Defensive wounds on the arms are common in weapon-based attacks. Use Zero Pressure and counterattack!

## Angles of (Counter) Attack

Jared Wighongi (left) steps to the Outside Line while parrying. In a dominant position, he slams the bad guy against the wall, pins the gun, and transitions to his Browning Vanquish Pocket Deploy knife.

So how can you utilize this principle in application? To achieve Zero Pressure, you need to put yourself in the right position. Moving to a point of domination in a combative encounter can mean the difference between going home or going to the morgue. The best position to deliver a counterattack is from the rear, but in most situations this will also be the most difficult position to achieve.

When countering a weapon-based attack, the key is to move to the Outside Line. Outside Line refers to the side of

the assailant's lead shoulder that's toward his back and away from his other arm. For example, if the bad guy leads with his right shoulder, you should move to your left so you're on the outside of his right arm and closer to his right shoulder blade, away from his left arm. With a weapon-based attack, you'll want to move to the Outside Line of the weapon-bearing arm.

Conversely, the Inside Line would be the side closest to your opponent's non-weapon bearing arm. (It's a less desirable position to be in because the bad guy can attack with both arms and legs.)



With the principles of position in mind, Zero Pressure will typically be achieved in one of these three positions, what I like to call Zero Pressure One, Two, or Three.

**Zero Pressure One:** This position takes place on the Inside Line, where I push the attacker's arm outward and away from his body. This position is normally achieved by jamming the attack as close as possible to its starting point before it gains momentum. This can be a good tactic, but staying in this position too long is less than favorable because of the bad guy's ability to curl his arm inward. This can make things difficult when controlling an assailant's weapon arm. Plus, the close proximity to the assailant's other arm will also give him the additional ability to attack and defend.

**Zero Pressure Two:** This is more of a central position, where the assailant's elbow is bent and you're pushing the arm into their body.

**Zero Pressure Three:** This is the preferred position, where you're on the Outside Line and pushing his arm across his body. Plus, you're furthest away from his other arm.

### Give Yourself Options

With this concept in mind, it's important to figure out the best way to get to the Outside Line. A common tactic that is taught in Pekiti-Tirsia Kali is forward angular movement toward the Outside Line position, often illustrated with a triangle or "V" motion. This angular movement moves you off line of the attack, while still keeping you close enough to gain control of the weapon-bearing arm. Good balance

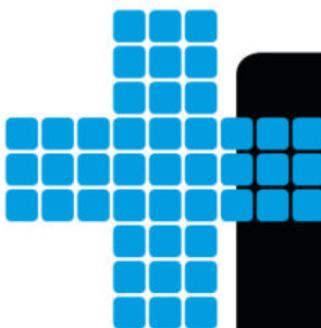
and foot mobility becomes important so that you can maintain a solid base and dictate distance and proximity.

The key is to move to the Outside Line – but keep in mind that you can't always dictate position. Sometimes objects in the environment or your position when the attack starts may dictate which direction you can realistically move. If the fight ends up on the ground or against a wall, you should look to pin the weapon-bearing limb to the ground, wall, or – in the case of Zero Pressure Two – to the assailant's body. The ideal way to control an arm is with one hand on the tricep, just above the elbow, controlling the upper arm. The other hand should be on the wrist close to the hand, controlling the lower arm. Your hands should be in an over/under grip position to maximize control.

The principle of Zero Pressure is universal in application, meaning it can be applied regardless of the weapon involved, or even to empty-hand assaults for that matter. The key is to immobilize the attacker's weapon-bearing limb just long enough for you to survive, orientate yourself, decide upon a course of action, and do it!

But what are some viable courses of action you might ask? The first thing is to decide whether you must remain engaged with the bad guy and counterattack, or disengage. You can then continue to one of the following options:

- Completely disengage from the situation – if it's feasible (it might not be a good idea to disengage and leave your wife and kids behind!)



## Historical Background of Pekiti-Tirsia Kali

Pekiti-Tirsia Kali is a combat art native to the Negros Occidental area of the Philippines. It was forged through centuries of warfare, both intertribal and international. Like many Asian fighting systems, the art was safeguarded by a particular family and taught to warriors of their tribe. It was first taught to non-Filipinos by Grand Tuhon (master) Leo Tortal Gaje Jr. in 1970s New York, shortly after he moved there from the Philippines. Kali differs from most martial arts in that training begins with weapons (primarily bladed) and then evolves to empty-hand application. The focus on no-nonsense weapon applications has made Filipino fighting arts a hot commodity with military special-operations units around the world, including here in the United States.



## SOURCES

Pekiti Tirsia Tactical Association  
[www.teampekiti.com/ppta](http://www.teampekiti.com/ppta)

The Gun Vault Utah  
[thegunvaultut.com](http://thegunvaultut.com)

If you've used Zero Pressure against an armed aggressor, but you can't transition to a weapon of your own, you'll need to disarm the bad guy. Here Jared Wihongi takes care not to cover the muzzle as he grabs the gun and rips it out of Conrad Bui's grip, going against the thumb, while delivering an elbow to the ribs as an added distraction.

Transition to a weapon that is tactically or legally more appropriate to the threat you're facing. You can shift to something you're carrying or something in the environment that can be used as an improvised weapon.

Utilize a takedown or throw technique, and then take that opportunity to disengage or subdue the assailant.

Go ballistic on the assailant, delivering strikes with the intent of creating a distraction that can set you up for the next tactic, or cause sufficient blunt trauma to neutralize the threat.

Oftentimes it will require a combination of two or more of the above tactics to handle the situation appropriately.

The concept of Zero Pressure is all about survival. Understanding the concepts of movement, momentum, and position can be integrated into an existing combatives skill set. Whether you're a prepper with only rudimentary self-defense knowledge or someone who trains regularly in a fighting system, it's impossible to prepare for every variable that might be faced in the real world. But fundamental principles like Zero Pressure can be applied to give us a tactical edge – or at the very least help us to not make fatal mistakes when confronted with the situation we can only hope we never have to face. ■

## About The Author:

Jared Wihongi is founder and president of Survival Edge Tactical Systems Inc., a tactical training and consulting company. He is known to many as the face of Browning's Black Label tactical equipment line. He is one of a handful of master-level (*tuhon*) instructors in the Filipino combat art of Pekiti-Tirsia Kali and has 15 years of experience in law enforcement. Most of that was spent as a SWAT officer and instructor of firearms and defensive tactics. Plus, he's spent more than a decade teaching combatives and survival skills to police, military, and covert-operations units in Asia, Europe, North America, and South America.

[www.facebook.com/jared.wihongi](https://www.facebook.com/jared.wihongi)  
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# DON'T BE AFRAID OF FEAR

**Use This Emotion to Catapult You Into Action Instead of Paralysis When SHTF**

Story by Dr. Neal H. Olshan



f all the emotions, the brain allocates the greatest space and energy to fear. Why? It's one of your lifelines when SHTF. Unfortunately, the types of fear typically experienced by the military, first responders, or law enforcement are now part of America's mainstream society. We're constantly deluged by a 24-hour news cycle with reports of floods, fires, ice storms, hurricanes, and too many more to list in this article. And those are just natural calamities. Let's not forget man-made crises like an EMP attack, terrorism, and the ever-looming threat of nuclear weapons.

The constant barrage of in-your-face reporting brings high-definition fear directly into your living room. Even if you choose not to watch the news, there's the continuing parade of disaster entertainment – from the 1970s classic *The Towering Inferno* and the '90s hit *Twister* to more recent fair like *San Andreas* – that force you to ask yourself, "What would I do in that situation?"

But our point is not to heighten or pile onto that fear mongering. As with all stories found here in OG, this feature is meant to give you important information that can help you in dire times. Specifically, we're going to explain what fear is, why

we experience it, and (perhaps most importantly) how you can use it to save yourself and those you love when something fearful does happen. Spoiler alert: Sorry, but we won't be dealing with phobic reactions, such as a fear of clowns, intimacy, or public speaking. If you consider any of those things a life-and-death situation, you'll probably want to read a different magazine and consult with a qualified medical professional. Now read on to find out how to use fear as a powerful tool.

## Anatomy of Fear

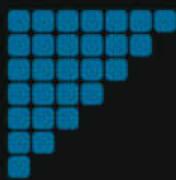
What exactly is fear? It's more than just an emotion. Fear is:

- › An evolutionary survival mechanism
- › A part of everyone's DNA
- › A natural, instinctual reaction to dangerous situations, real or perceived

The experience of a fear response has no correlation to physical, emotional, or intellectual weakness, but is actually the engine that causes us to take action. For example, it helps us escape from a burning building, get out of the way of a speeding car, or plan to defend ourselves when faced with danger. Fear is a learned process, and how to control the "fear response" can also be learned.





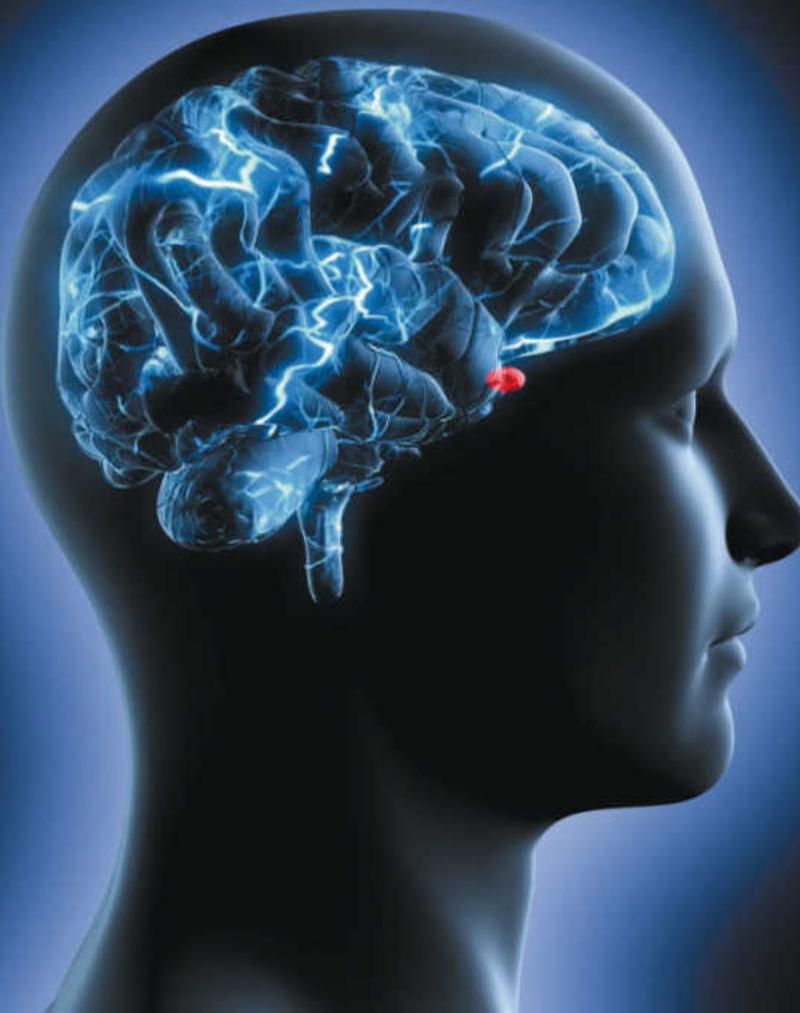


So where exactly does fear come from? Here's a look at the anatomy of fear.

**Amygdale:** This almond-shaped mass of cells is located within the temporal lobe of the brain and is the reception center for input of information that triggers the body's autonomic (automatic) responses to fear. Recent scientific studies of the amygdale have discovered a grouping of neurons that are essential in transmitting fear alert and reaction signals to other parts of the brain.

**Neuron:** This is a cell that is responsible for the transferring of information and electrical impulses throughout the body. There are two neuron fear transmission pathways and each operates at different speeds:

1. A startle response is the fastest (20 milliseconds) from awareness of the event to amygdale's fear pathway, e.g. hearing a gunshot, seeing a sudden motion, or sensing physical pain.
2. The thought process of the brain's cortex utilizes a secondary pathway (300 milliseconds) to the amygdale, e.g. intuition, memories of failures, etc.



## How Fears Grow

Scientists believe that we're born with only two fears: fear of falling and a fear of loud sounds. Yet, how is it that people go about their lives unable to deal effectively with threats, both real and perceived?

**Prior Scary Experiences:** Past experiences that ended badly become imprinted on the memory, only to be recalled and reactivated in the presence of a fear similar to a situation that caused the original fear. It'll take training, practice, or counseling to move on so you can deal with future difficult situations.

**Poor Role Models:** As mentioned previously, one can learn how to control the "fear response" — but you need someone to teach you how to do so if you haven't figured out how yourself. If your parents freaked out at the slightest difficulty, there's a good chance you will, too. Fortunately, the role models you had as a youngster don't have to be the same people later on in life. You can make the direct choice to have role models who've shown the capacity to stare fear directly in the face and respond appropriately.

**Lack of Training:** Lack of or inadequate training can be a direct precursor to an inappropriate fear response. Be sure to choose training that's directly related to your particular situation. If you're an outdoor enthusiast, there's a chance (no matter how slim it is) you might get lost, injured, or attacked by two- or four-legged predators. Therefore, orienteering, navigation, field medicine, and self-defense training will be essential toward reducing or eliminating an inappropriate fear response.

## The Symptoms

The types of fears experienced during a SHTF situation have the strength to temporarily paralyze your thought process. You become stuck in the moment and your ability to problem solve becomes compromised or nonexistent. Other symptoms include panic or anxiety, procrastination, indecision, making excuses for not participating, or opting out of a particular opportunity.

Physical symptoms can include:

› Cold chills	› Hands tremble
› Sweaty hands	› Knees feel weak
› Dry mouth	› Shortness of breath
› Upset stomach	› Blurry vision
› Squeaky voice	› Light-headed or dizzy
› Stuttering or difficulty talking	feeling and headache

No one ever experiences all of the physical and emotional symptoms of fear simultaneously. A beneficial exercise is to think back to a time when you experienced fear and examine how you reacted emotionally and physically? Make a list. It's extremely important for you to understand your personal fear response pattern since this becomes your early warning system.

## The SHTF Duo

For the purpose of this article we're going to focus on two of the most devastating fears that come out to play when disaster strikes: The fear of failure and the fear of running away (or doing nothing).

**Fear of Failure:** What is failure? It's a concept that we learn as young children, such as being reprimanded by our parents, teachers, and even peers for making the wrong choice. Failure soon becomes a noxious event, and we strive to reduce the chances of these unpleasant feelings by avoiding difficulties, not volunteering, giving up after an initial let-down, and eventually staying in the background. In the adult world there's a tendency to focus on the consequences of failure rather than on the value of perseverance.

The interesting thing is that without "failure," none of the great successes in history would ever have occurred. An often cited example is Thomas Edison, who tried thousands of times to find an effective and long-lasting filament for the incandescent light bulb. What would our world be like if explorers and scientists gave up at the first failure? Imagine if astronauts awaiting launch heard the mission commander state over the intercom, "I'm cancelling the flight. I think it could fail."

Take a careful assessment of your behavior during a survival skills class, combatives course, or a practice session at the gun range. Is the fear of failure prohibiting you from advancing your skill levels? The experience of failure can serve as a motivator. Many instructors will purposely bring you to a point of failure where some of the most important learning takes place. Being afraid of failing will set up a pattern of avoidance and a plateauing of skills. Don't view failure as an end point, but rather a bump on the road to success.

**Fear of Cowardice:** Without question, the most devastating fear is that of being perceived as a coward. This isn't a new concept, for hidden in the deepest recesses of the human mind is this primal emotion: "I cannot let my tribe down." Indications of this fear can be traced throughout history and across all societies. This fear, the thought of letting down your family, friends, or comrades is not only devastating, but leaves deep emotional scars.



# The New Fears

Fears of mass shootings have touched the lives of millions of people and have become an unfortunate fact of life. Mentally unstable individuals, grasping for fame and notoriety, have created a new definition for the killing fields and have used the Internet as their launching pad. These tragedies are brought into people's living rooms by the insatiable appetite of the 24-hour news cycle, along with a hefty push from social media.

As a prepared-minded individual, you can take some simple steps to break the initial fear response paralysis and improve your chances of survival. Actions in the first few seconds of any mass shooting could mean life or death. Here are some things to consider:

**Don't Ignore Your Intuition:** If something doesn't feel right or your body seems to be warning you, stop what you're doing and evaluate the situation (see "Voices in Your Head" in Issue 21 of our sister publication *RECOIL*). Don't assume that everything is OK. Forcing yourself to think logically and rationally impedes the development of a Fear Response.

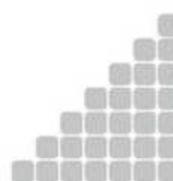
**Have a SHTF Plan:** Always have a plan, whether you're eating in a nice restaurant or going to the movies. It takes only a few seconds to check where the exits are located. Picture in your mind what you would do if someone had a weapon and began shooting.

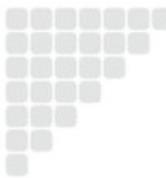
**Get Training:** If you can legally carry a gun (depending on state and local laws), then training classes are essential. Also consider taking combative courses or joining a self-defense studio. Try to pick courses and schools that can provide simulations of real-life scenarios.

**Encourage Education:** Support the awareness of and training of emergency response plans at workplaces, schools, and organizations. Knowledge remains one of the most powerful deterrents to fear paralysis.

The fear of refusing or dodging responsibility that could cause you injury is not typically found in our everyday lives, but exists during wars, natural disasters, civil disobedience, and most survival scenarios. Unfortunately, there isn't an abundant amount of ways to prepare for this type of fear. The military and law enforcement have specialized training programs that can realistically simulate the triggers for running away or doing nothing. However, most of these programs are not available to civilians.

Fortunately, there are a few techniques that were developed by prisoners of war and can be utilized by civilians.





## Additional Resources

### **Emotional Intel**

by Michael J. Asken

### **Everything You**

### **Wanted To Know**

### **About Phobias but**

### **We're Afraid to Ask**

by Dr. Neal Olshan

### **Fear Gone**

by Michael Grant

### **On Combat**

by Lt. Col. Dave Grossman

### **Overcome Fear and**

### **Self-Sabotage**

by Haoting Chow

### **Robert E. Lee on Leadership**

by H.W. Crocker III

### **Where There is No Doctor**

by David Werner

## Methods to Fight Fear

**Method 1 - Stop The Trap of What-If's:** Negative self-talk is one of the most destructive things to success and contributes to building fear. This includes a variety of "What if?" questions, like:

- › "What if I'm not strong enough?"
- › "What if I get hurt or die?"
- › "What if I'm wrong?"
- › "What if I can't be a leader?"
- › "What if I make a mistake?"

Push these thoughts out of your head at the first sign of them and instead focus on the task at hand.

**Method 2 - The Fear Box:** Prisoners of war face the very real threat of physical harm, mental torture, and death every day that they're in captivity. The "Fear Box" technique is simple in its format, but application takes practice. Mentally picture your brain as a series of boxes, each with a lid. There's a box for your relationships, your work, your past, your aspirations, your successes, your failures, and your fears. Typically the fear box may contain previous fear experiences.

Let's take a look at how the boxes function. You're driving, and a song begins to play on the radio that had been a favorite when you were younger. Immediately, memories begin to play in your mind when you listened to the song. What just happened? Mentally, upon hearing the song, your brain went to the box, which contained memories contemporaneous with the tune, and opened the lid, allowing the memories to flow out. It's a process of brain neurons and synapses that occurs automatically. After a short period of time, the lid is automatically replaced.

The only box under your control is the Fear Box. Whenever you experience fears that may paralyze your thinking, mentally visualize the word "Fear" and place it into the box and replace the lid. This visualization takes practice. The time to practice is not as you watch the flood waters rising around your stalled car. Instead, start now.

**Method 3 - Breathe:** Quick breathing, high in the chest, is another alert mechanism that needs to be reduced. If you're not in immediate danger, take three deep breaths, inhaling through the mouth and exhaling through the nose. Let your shoulders drop, which prevents stretching of the intercostal muscles. Although the exercise is simple, it sends a biochemical signal to the amygdala that initiates stoppage of the panic response.

As an example, many trained shooters at the range (whether bow or firearms) will take a deep breath and let it out slowly by habit in an effort to focus and calm their neuro-

## DON'T BE AFRAID OF FEAR

muscular system before taking a shot. There are numerous breathing techniques. Spend a few minutes on the Internet or ask a reputable instructor to find the best technique for your circumstances. Controlled breathing is one of those skills with transferable applications in everyday circumstances, i.e. giving a speech, meeting someone new, etc. The more you practice, the better and quicker the response when you need it.

**Method 4 - Analyze:** Think before you react. Analyze your present situation, developing a mental pros and cons list. Typically it'll come down to only three decisions: take action, do nothing, or retreat. As with the breathing, analyzing your situation sends signals to the amygdala to stop the panic response.

**Method 5 - Mobilize:** Once you've analyzed the situation and decided to act, there are usually three choices: do nothing, run/escape, or confront. Each action is dependent on the two previous steps (breathe and analyze).

## Final Thoughts

Fear is not necessarily a bad thing. Adrenaline junkies don't just experience fear, they thrive on it. However, no matter how adventurous you are, there are times when you'll be afraid. Understanding which of your fears are normal and natural is extremely important.

Which are normal fears? Well, you'd be crazy not to be afraid of sharks, of climbing a steep mountain, or of accidentally getting lost in a gang-infested ghetto after dark. These fears help keep you alive. They trigger a series of reactions to make your heart, muscles, and brain work faster – to get you out of frightening situations. There is a need to develop mental escape routes from danger.

Bottom line: We need a survivor mentality to cope with modern-day fears. This leads directly to answering the question that has transcended millennia, "Do I have the courage to overcome my fears?" ♦♦

## About the Author

Dr. Olshan is the developer of the Evolution of Mindset Training Program. He is a consulting psychologist for corporate/executive functioning and to the sports and shooting industries for performance improvement through the use of the Mindset protocols. He is also the chief combat psychologist for LMS Defense, an award-winning photographer, a pilot, and an author of both fiction and nonfiction books. To contact, email him at mindsetdoc@gmail.com.



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# DIY BLADE- SMITHING

**No Knife? No Problem. Learn the Finer Points of Improvised Blade-Making**

**Story and Photos by Mike Searson**

**I**saster has struck. Maybe you're on your way to work. You find yourself having to bug out — realizing you forgot your faithful EDC knife on your dresser drawer at home. Or perhaps you've just survived a plane crash or an off-road ATV accident far from civilization, and you've lost your gear. Whatever the calamity, you're now up SHTF creek without a paddle and, worst of all, without a knife. You need to find one, quickly.

Most of us cannot fathom going down the street without a pocket knife of some sort, yet here you are. Miles from the closest sporting goods store or hardware store, what will you do when the time comes for a blade to help you survive until you make it home? Build your own, of course.

But first a clarification: We're not talking about an improvised weapon. This was deftly covered in OG's 2014 winter issue. Most of us who have even the smallest inkling about self-defense can be resourceful when it comes to finding a stick, club, rock, broken bottle, or any number of available weapons to fend off an attack. Nor do we mean a custom knife adorned with ergonomic scales and using modern super steels in the blade that was developed by NASA for use in the space shuttle program.

What we're talking about here is a tool meant for cutting, chopping, whittling, skinning, and various other chores that we may be confronted with in a survival situation.

The knife is arguably humankind's oldest tool and can often mean the difference between life and death. Because of its age, however, a resourceful human can fashion a blade from most materials that can be found almost anywhere. Our ancestors crafted knives before they invented a written language, and we have learned along the way through centuries of blade making how to only get better at it.

## Two Roads Diverged

A knife is made by two basic methods: forging or stock removal. The forged blade is made by taking a piece of metal and shaping it into a knife by means of heat and pressure. Stock removal, on the other hand, means taking a piece of material and removing everything that does not look like a knife. Each method has its pros and cons, but for our purposes we're only looking at which is easier to make based on the average reader's skill set and on the materials one might find in an emergency or a grid-down scenario.

To grind a blade from a piece of metal, you will need the steel with which to work and an abrasive surface, such as a rock, brick, or even another piece of metal to shape the blade and expose the carbides in the steel. In other words, you need a piece of metal and something to sharpen it with. A lid from a can of tuna fish, an old metal shelving bracket, a metal file, or anything reasonably flat can be pressed into service with the help of an abrasive surface to form the edge.

For example, we tried the can lid method by assembling a blade from:

- › Lid from a can of smoked salmon
- › Cardboard
- › Duct tape

These materials weren't optimal by any means, but represented what could be scavenged from a trash can. The lid needed sharpening and, after working it for nearly 45 minutes on a slab of concrete, we obtained something resembling an edge.

We decided to fashion it as an ulu-style blade. For a small piece of metal with no method to pin the handle, it made the most sense. The inferiority of the metal made it usable on softer materials, like fruits, vegetables, and cooked meat.

Our ulu even worked well enough to cut cardboard, but this would not work well as a general-use knife.

When it comes to making a blade out of scrap like this, your only limitation – besides what you can scrounge – is your imagination.

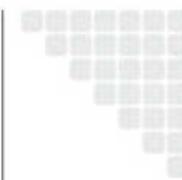
## Forge Ahead

Maybe your situation doesn't lend itself to grinding out a knife. Fortunately when the author surveyed a dozen professional knife-makers (most of whom were the stock-removal types) the overwhelming response came back as, "I would forge one."

We consulted with two bladesmiths from the American Bladesmith Society: Michael Quesenberry and Peter Pruyne. These makers specialize in the art of the forged blade, and considering we've never forged a piece of steel before, their input gave the author a better appreciation of forged knives.

What is important here is finding an appropriate piece of metal to start with. In addition to the steel, the forger in the wild needs a source of heat, an anvil, and a hammer. The heated metal is placed on the anvil and the hammer provides the opposing force to beat the metal into the desired shape (this was the pressure we mentioned previously). Anvils and hammers can be improvised: We are merely looking for a hard, flat surface on which to work and a hardened tool with a flat head to force the metal into shape. The anvil could be an old tree stump, while the hammer could be a large rock.

To forge steel, we will need a heat source of around 2,100 degrees. Ideally, the forge will need to burn hotter and more consistent than wood, such as with charcoal or propane. Forcing air into the forge will keep the temperature high and consistent.



An ulu knife from Alaska Cutlery next to the author's improvised knife, which was crafted out of cardboard, duct tape, and the lid of a salmon can.

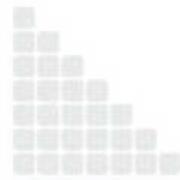
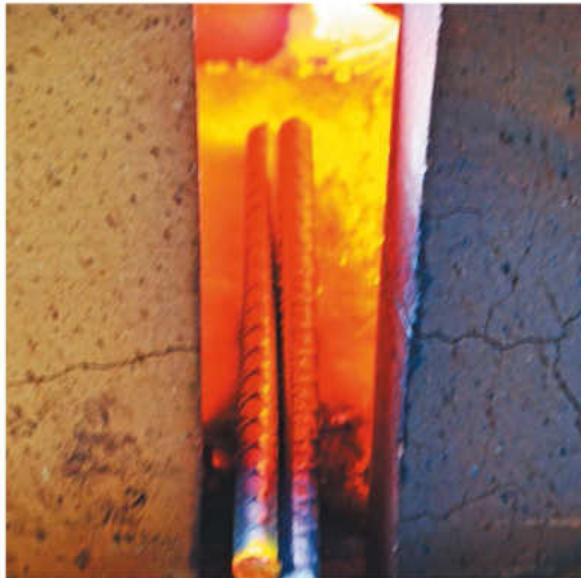




Joas/istockphoto.com

**Select Your Steel:** Keeping with the concept of scavenging, we chose rebar. Both of our bladesmiths felt that it was an unsuitable steel type, but we reminded them that this would not be a “knife-show beauty,” but rather a DIY survival blade. Eventually, the experts agreed that rebar would give us the bare minimum in cutting ability and strength, plus it can be found in almost any urban setting. The same concept could be applied to old files, horseshoes, saw blades, railroad spikes, or just about anything composed of steel – with the caveat that the harder the steel, the more heat (and arm strength) will be needed to hammer it into shape.

**Build a Fire:** The process begins with heat, and we used a simple forge. In an emergency situation a bonfire could generate the same heat. If you have access to a stove of some sort or can improvise an oven using bricks or rocks to keep the heat trapped, you are halfway there. We've seen some people use metal barrels to achieve the same heat.



**Hammer Away:** Your selected blade metal must be heated until it glows reddish orange, at which point you can remove it from the forge and hammer flat. The metal cools relatively quickly and when it turns gray or black, it goes back into the fire.

Once the area of the blade is reasonably flat, hit it at an angle to form bevels. The hammer strikes must be hard, consistent, and need to overlap. The process will make the tip curl upward into a natural point. When we worked the blade, we wanted to form more of a drop point, which took a bit of shaping using the hammer. We wanted a thinner edge, which caused the blade to stretch a bit more.

When finished, we put the rebar back in the forge in reverse. Another advantage of using rebar is its length, which provides plenty of materials to make an integrated handle and guard. No need to search for screws and wood scales to fashion a comfortable grip.



The very end was formed into a rectangle by hitting it from six angles. After another trip into the forge, we hit the handle off the side of the anvil to form a perpendicular finger guard and hit the apex around the anvil's horn into a loop and underneath the spine of the handle. With our creation looking a little bit more knifelike, we allowed it to cool. Then we had to normalize the metal and bring it back to a state where it could be used. This resulted in three more quick trips to the forge for less than two minutes each time with a cool-down period.

**Grind It Out:** Finally the edge has to be ground. We chose a metal file in lieu of a belt sander or grinder. The hardest part was breaking through the scale. This is the gray-looking material that "ugly ups" the two knives. A real smith would clean this up on the belt, through quenching or blasting, but we chose to forgo those luxuries to simulate a grid-down scenario. We finished the edge using an old piece of sandpaper.

**Field Test It:** When all was done, we tested the knives on rope, cardboard, and a piece of leather. While it lacked the fine edge of a custom blade, the end result was close enough for government work. And the texture of the rebar made for a surprisingly good grip.

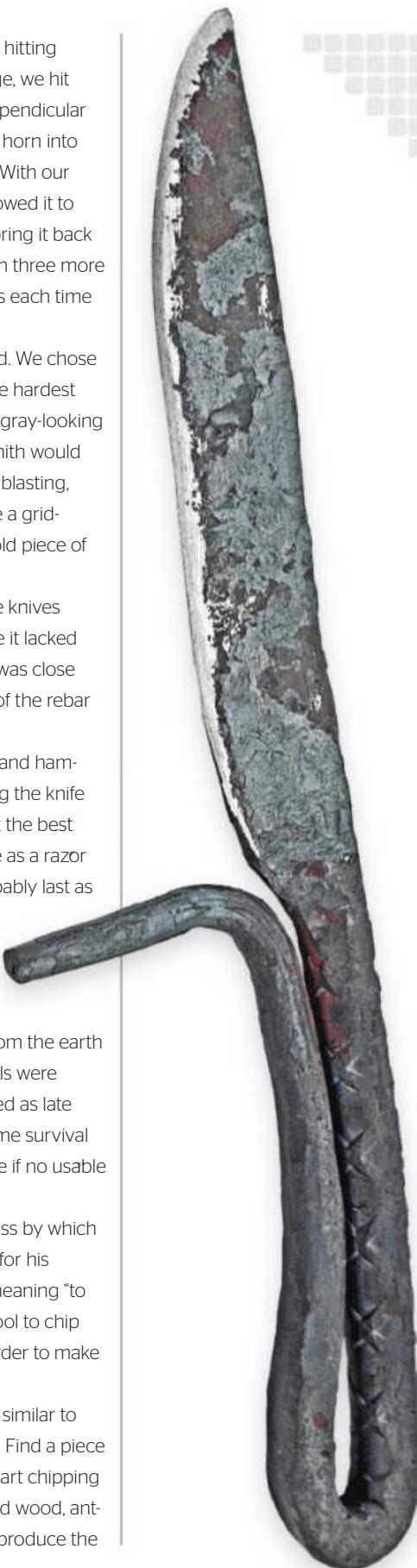
Total time was five hours using a forge, anvil, and hammer. As of this writing, the author has been using the knife on a daily basis for four weeks and, while it's not the best knife in the world or a suitable candidate for use as a razor for shaving, it gets the job done and would probably last as long as a professionally made knife of similar or even better materials.

### Take a Knap

Before humans learned how to extract ore from the earth or how to work it, the majority of our edged tools were made from stone. These types of tools were used as late as the 19th century in the Americas. In an extreme survival situation, this may be the only recourse available if no usable metal can be found.

Flint knapping originally referred to the process by which a hunter or gun-maker would craft usable flints for his flintlock rifle and comes from a German word meaning "to strike." These old-time gunsmiths would use a tool to chip away small pieces of flint from a larger one in order to make a piece small enough to fit their rifles.

For our purposes the craft is the same and is similar to the stock-removal method mentioned previous. Find a piece of flint, quartzite, agate, chert, or obsidian and start chipping away with small tools like our ancestors did. Hard wood, antlers, denser rocks, or pieces of copper or brass produce the



AndreasKermann/stockphoto.com

## Making Charcoal

The drawback of the forged blade is producing enough heat to make it. Campfires, bonfires, and wood-burning stoves can be used, but the problem is that the campfire method or stove method requires more time in the fire whereas the bonfire may be too hot to get close enough to heat the metal without tongs. A charcoal fire will burn hotter than wood, but if a disaster breaks out, and you don't already have a knife, there's a good chance you won't have a bag of Kingsford Briquettes handy, either.

Charcoal is made from wood. The easiest way to make it is to cram as much wood that will fit into a metal or masonry container and heat it in a bonfire or burn barrel. The receptacle (known as a retort) needs vent holes in the bottom that will vent the gases back into the fire to make it hotter and cook off the oxygen inside. The wood needs to cook for several hours depending upon the size of the retort.

Typically two-thirds to three-quarters of the size of the wood will be lost in the process. So 50 pounds of wood should yield 12 to 18 pounds of briquettes. Obviously, in a grid-down scenario, firewood won't come cheap or easy unless you're Grizzly Adams, so you could create charcoal as a byproduct of making good use of fire, such as to keep your basecamp warm in the winter or to grill a steak after you've dressed out a prime piece of game.



best results. Harder metals such as steel, iron, or titanium are too destructive for the process, as they tend to shatter the stone. We used a variety of old pieces of cartridge brass, a rounded rock, and a piece of elk horn attached to a fire starter as our tools.

Knapping a blade is tougher than it seems. Our first effort was decent for producing a sharp cutting edge, but the point kept eluding us and would round. The more we worked on the point, the more flint would break off. We stopped at a somewhat rounded point as we were losing valuable blade length.

We had a usable blade in about three hours. Finding handle material and a means to secure the knife to the handle took a bit less.

### Get a Grip

One of the challenges to making a knife is making a handle and keeping it somewhat permanently fixed. In our stock-removal experiment, we were limited to duct tape and cardboard. The forged blade allowed us to make an integral handle, and the rebar gave us a good gripping surface. The flint blade was perhaps the easiest in that we could knock out notches on either side to wrap the blade to a piece of wood. Our primitive ancestors used rawhide, but hollowed paracord proved to be an acceptable substitute.

In terms of performance, the flint knife cuts food, rope with some effort, and is surprisingly durable for what it is. This was probably our second best attempt. We realize it might not be practical depending on your region of the world, as the best stones to perform this type of work are not simply lying on the ground to be picked up. Our master smith tutor, Michael Quesenberry, shared that he has seen evidence of Native American knife-making factories on various bluffs overlooking rivers in his travels through the western United States, evidenced by tiny chips of obsidian

found well outside the "Ring of Fire." The hypothesis is that Native Americans traded amongst one another for obsidian and would sit on these bluffs crafting knives, arrowheads, spearheads, etc.

Another survival expert and knife-maker, Abe Elias, mentioned that the same effort could be made by using glass as a medium. True, glass can be sharp and make effective cuts. If we simply wanted an improvised weapon, it would suit that role. Yet it is not durable enough to be carried, and there is the risk of glass particles contaminating food if such a blade is used in food prep of any sort. That could pose a bigger risk than having no knife at all.

### Which One Was Best?

By far, the best knife we made was the forged blade; it also took the longest amount of time. Grinding the can lid on concrete was the quickest, but definitely the flimsiest piece we made. And the flint knapping was completely dependent on the part of the country where the author lives. Every scenario is different, and your calamity may put you in a place where raw materials are virtually nonexistent or in place where resources are abundant, but you have little means to work with them.

If you want more information on how to make your own knives under ideal circumstances to prepare you for when those circumstances are less than ideal, contact your local custom knife-maker for a shop tour or contact larger organizations, such as the American Bladesmith Society or the Knifemakers' Guild.

Hopefully this will make you remember that your knife may be your most important piece of equipment and to never leave home without it. If you should find yourself having to make one to get by, please keep these guidelines in mind and realize your only limitation is your own creativity and ingenuity. ■



### SOURCES

- Abe Elias > [www.facebook.com/aelias2](http://www.facebook.com/aelias2)
- American Bladesmith Society > [www.americanbladesmith.com](http://www.americanbladesmith.com)
- Knifemakers' Guild > [www.knifemakersguild.com](http://www.knifemakersguild.com)
- Michael Quesenberry > [www.quesenberryknives.com](http://www.quesenberryknives.com)
- Peter Pruyne > [www.facebook.com/peter.pruyn.3](http://www.facebook.com/peter.pruyn.3)

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# SNAP IN TO SURVIVAL

## Jerky Taste Test: Which Dried Meat is Prepper Approved?

Story By Martin Anders  
Photos By Michael Grey

**T**was probably 3 years old when I got my first taste of this gloriously tasty, dried meat we call jerky. When you're that young, all you cared about is that food tasted good, never stopping to think about what the stuff you were eating was made of. I put jerky down like there was no tomorrow with a silly grin and overworked jaw.

It wasn't until a few years later that I put two and two together and figured, *Hey, jerky is pretty much "raw" meat!* It was between playing a round of *The Oregon Trail* (buying supplies at the general store, including dried meat) and watching a Ronco Food Dehydrator infomercial (in which they made beef jerky) when I realized the meat I enjoyed so much is not cooked. Well, not cooked in the traditional sense that steak is. I was eating old, tough, raw meat ... why didn't I get sick? What is this stuff?



## Dried Meat 101

Jerky production has a long history and can be traced back to almost all ancient civilizations, from the Incans who made llama jerky to South Africans who made *biltong* (a type of dried, cured meat). Hundreds of years ago, Native Americans taught Europeans the art of drying meat, which in turn, helped spread jerky clear across the globe.

In general, meat jerkies are not cooked, but dried instead. Drying food is a technique of food preservation that far outdates canning. So what's the science involved? In layman's terms, when meat has no more moisture, enzymes can no longer react with it. (These enzymes can come from bacteria or fungi, or even naturally occurring autolytic enzymes from within the meat itself.) In other words, dried meat can last a long time before it goes bad.

Because jerky is essentially meat minus the moisture, it is dense in nutrients and light in weight. In fact,

a pound of meat weighs about 4 ounces after being turned into jerky. Aside from significant weight savings, this shelf-stable, high-protein food can be stored without refrigeration. Undoubtedly, this allowed our real-life Oregon-bound wagon train friends the luxury and nutrition of meat, even on a long arduous trip. The benefits of this wonder food are not lost on people today.

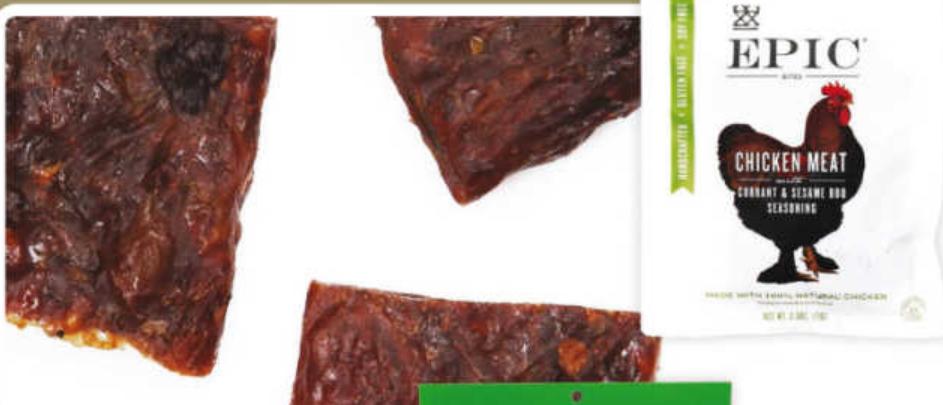
## Modern Meat

Enter the modern-day survivalist. When choosing what types of food to pack away for when all hell breaks loose, we certainly do have plenty of choices at our disposal. Canned, bottled, freeze-dried, airtight bagged — you name it, someone's probably created it. We might have our 3,600-calorie food bars in our go-bags and years' worth of MREs stowed away in our underground bunkers, but those kinds of food can taste downright nasty and may not be as portable to boot.

Let everyone's (read "my") favorite childhood junk food come to the rescue! As mentioned before, jerky is lightweight and easily stowed. It is mostly impervious to the elements, provides plenty of energy to burn, and can last a long time (mileage may vary, but usually up to a year or more). Best of all, it's tasty stuff. Jerky can be used to supplement a well-rounded survival meal plan, enjoyed as a treat to uplift your spirits, or consumed as an easy-to-reach energy source in a lightweight bug-out bag. One might argue that jerkies are heavy on sodium and can induce thirst, so that's a factor to keep in mind.

In this issue of *OG*, we take a look, smell, and taste of jerkies of a variety of types and flavors. We go from gourmet to gas station, and rate them as we taste them. Riding along the flavor train with yours truly are Network Manager John Schwartze and Editor Patrick Vuong to provide second and third unabashed opinions of this great jerky taste test. ■■

## THE TASTE TEST

**MAKE & MODEL****EPIC****Nº** EPIC Bites Chicken Meat with Currant & Sesame BBQ Seasoning**CALORIES PER SERVING** 90**PRT** PROTEIN PER SERVING 9 grams**PACKAGE SIZE** 2.5 ounces**\$** MSRP \$7**URL** [www.epicbar.com](http://www.epicbar.com)**MAKE & MODEL**  
**FUSION JERKY****Chipotle Lime Artisan Beef Jerky****CAL****CALORIES PER SERVING** 90**PRT** PROTEIN PER SERVING 10 grams**PACKAGE SIZE** 3 ounces**\$** MSRP \$7**URL** [www.fusionjerky.com](http://www.fusionjerky.com)**MAKE & MODEL**  
**FUSION JERKY****Island Teriyaki Artisan Pork Jerky****CAL****CALORIES PER SERVING** 70**PRT** PROTEIN PER SERVING 9 grams**PACKAGE SIZE** 3 ounces**\$** MSRP \$7**URL** [www.fusionjerky.com](http://www.fusionjerky.com)**MAKE & MODEL**  
**LAWLESS JERKY****Pho Beef Jerky****CAL****CALORIES PER SERVING** 80**PRT** PROTEIN PER SERVING 11 grams**PACKAGE SIZE** 2 ounces**\$** MSRP \$6**URL** [www.lawlessjerky.com](http://www.lawlessjerky.com)

TESTER #1:  
Patrick VuongTESTER #2:  
John SchwartzeTESTER #3:  
Martin Anders

**Overall:** It looks like beef jerky, is soft like ground pork, and tastes like something my mom would make (thanks to the Asian spices) – an odd mix, yet quite appealing. I also give EPIC props for the presentation: the dried poultry is cut into bite-size squares and packaged in a resealable bag, ideal if you're on the move (whether hiking or bugging out).

**Overall:** Never had chicken jerky, but this stuff is darn good. Sweet, barbecue flavor with smoky notes to it. Texture is a little softer than traditional jerky. Would definitely stock up on this one for snacks, but would lean toward some of the other brands in this taste test for grid-down needs since it doesn't have as much fat (which is needed for long-term survival).

**Overall:** This is chicken that tastes like beef... basted in an interesting BBQ-derived flavor. The texture is super tender and soft. I would definitely pack this jerky into some of my survival bags and have a stash of it back at my food cache. If anything, its flavor helps break the monotony of my pork sausage patty MREs.

**Notes:** If you're concerned with how your food is raised, the EPIC brand of meat products would most likely interest you. These EPIC Chicken Bites are sourced from only 100-percent non-GMO-raised chickens. Made in the USA, it has no growth stimulant or antibiotics and is a good source of tryptophan, phosphorus, selenium, niacin, folic acid, and vitamin B6.

**Overall:** If you've never had Asian-style jerky before, this flavor is a good place to start. It's tangy and spicy (two common combos found in jerky from China, Thailand, Vietnam, etc.) and a little bit more dry (yet still tender). I also like that you get a little bit more meat for a competitive price – and in a reusable bag.

**Overall:** Nice thick strips that are very moist. Texture is a little chewy like standard jerky should be, but not tough. Lime flavor is a bit heavy-handed to the point that I feel like I should pair it with shots of tequila. It comes in a 3-ounce bag (biggest of all jerkies tested), reason enough to place this as my No. 1 pick for SHTF situations.

**Overall:** This jerky is very moist and tender, but it features a lot less fire and a lot more sweetness than advertised. It does have a nice splash of lime thrown in there, however. The spiciness does show itself, but as an after-taste. I can eat this, but it's not my favorite.

**Notes:** Fusion Jerky was founded by a globe-trotting outdoor adventurer who brought her family's Asian recipes to the American mainstream when she found common high-protein snacks to be subpar while scaling Mount Kilimanjaro. This flavor promises to be the company's spiciest. Plus, it contains no nitrites, no MSG, no preservatives, and is made in Nebraska.

**Overall:** Being the only taster on this panel of Asian descent, I am proud to say I've had plenty of jerky made of pig (along with many other animals you might consider disgusting to dehydrate – dried squid, anyone?). So, how does this one fair? It's soft, healthful, and well balanced. Though pork isn't my favorite meat, the quantity in this package and the resealable bag definitely help tip the scales in its favor.

**Overall:** Another first for me: pork jerky. The teriyaki flavor is nice, and the strips are more like traditional jerky, but not tough. A serving has no fat, 18 percent of your daily protein intake, and 12 percent of your sodium intake. This is another one I'd recommend, especially for SHTF food because it claims to be a healthy alternative. Wish it had more fat though.

**Overall:** If you like teriyaki, you'll like this jerky. It's got that distinct sweet soy sauce flavor that teriyaki is known. Unlike many others, this jerky is made of pork, whose texture leans toward very tender. The meat is sort of translucent, which threw me for a loop.

**Notes:** If an escape from a crumbling city isn't what you signed up for and a tropical escape is what you seek, this Island Teriyaki Artisan Pork Jerky can help you do that – in your mouth at least. Using premium cuts of pork sourced only in the United States, each piece of this teriyaki-flavored jerky is grilled and features no nitrites or preservatives.

**Overall:** In case my surname didn't give it away, I've enjoyed pho since I was a child. So I asked myself, *Can you turn a noodle soup into a jerky?* Lawless Jerkey says, "Yes." My taste buds say, "Oh, hell no!" It tries to pack in too many pho spices – cloves, star anise, cinnamon, etc. – when just a hint would have worked. And cow is my favorite dead animal, yet the beef here is as dry as sawdust. Fortunately, the jerky's relatively healthful.

**Overall:** Interesting flavor, texture consistent with typical jerky. Could definitely taste the cloves and mint. Nutrients left me wanting more, though. Eleven grams of protein, 12-percent sodium, and only 2-percent fat. I realize these manufacturers aren't looking to pack on calories and sodium for their consumers, but in a survival situation that's what you want. This one is a great snack, but not a SHTF food.

**Overall:** This is a flavor that I couldn't imagine and just had to try. Well, it fell real short in both flavor and texture departments. Jerky is supposed to be dry, but this jerky is tough to get down without a swig of water. Flavor wise, there is some spice and a bit of sweet, but no pho in sight or taste.

**Notes:** A former attorney, Lawless Jerky's founder creates every flavor from scratch, including this one. Pho (pronounced "Fuh?") is a Vietnamese noodle soup that is commonly made with beef stock...and is now a flavor of beef jerky. Made from 100-percent grass-fed beef in Arizona, this jerky features no corn syrup, no nitrites, and no nitrates.

## THE TASTE TEST



**MAKE & MODEL**  
**LAWLESS JERKY**  
Sweet Sriracha Beef Jerky

**CAL** 80  
**PRT** 11 grams  
**PACKAGE SIZE**

**MSRP** \$6  
**URL** [www.lawlessjerky.com](http://www.lawlessjerky.com)



**MAKE & MODEL**  
**SLIM JIM**  
Original Giant Slim

**CAL** 140  
**PRT** 6 grams  
**PACKAGE SIZE**

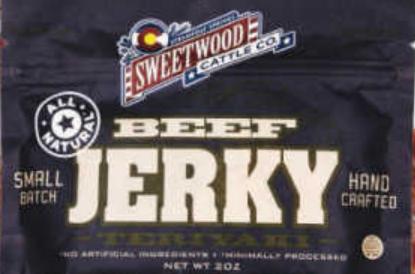
**MSRP** \$4  
**URL** [www.slimjim.com](http://www.slimjim.com)



**MAKE & MODEL**  
**SWEETWOOD CATTLE CO.**  
Beef Jerky Hot

**CAL** 90  
**PRT** 11 grams  
**PACKAGE SIZE**

**MSRP** \$8  
**URL** [www.sweetwood.com](http://www.sweetwood.com)



**MAKE & MODEL**  
**SWEETWOOD CATTLE CO.**  
Beef Jerky Teriyaki

**CAL** 90  
**PRT** 11 grams  
**PACKAGE SIZE**

**MSRP** \$8  
**URL** [www.sweetwood.com](http://www.sweetwood.com)

TESTER #1:  
Patrick VuongTESTER #2:  
John SchwartzeTESTER #3:  
Martin Anders

**Overall:** After being disappointed by Lawless Jeryk's pho flavor, I didn't have high hopes for this one. Fortunately, it really does taste like sriracha, but it's not particularly spicy. Though, if you consume the whole bag (which has two servings), it does have a cumulative effect. This meat has a solid texture, not too chewy, but just tough enough to be jerky. Overall? Good!

**Overall:** Good spicy flavor, but not too potent. Texture is moist and fairly easy to chew. It was middle of the road for me overall. I'd grab it for SHTF, but wish the package was bigger. It's a nice snack for those looking for more natural small-batch jerky and would work for survival. Wish it had more nutrients like protein and fat.

**Overall:** That red bottle of hot sauce with a green cap they call sriracha is a constant mealtime companion of mine. Now there's a beef jerky made in its flavor? Sign me up! The flavor approximates a sweet sriracha hot sauce pretty well and has a nice spicy warmth to it, as well. It's on the dry side, but I can live with that.

**Notes:** Inspired by the recent hot sauce fad, the Sweet Sriracha Beef Jerky promises to bring some heat to your snack time. Like the company's pho jerky, this one's made from 100-percent grass-fed beef and features no corn syrup, no nitrites, and no nitrates.

**Overall:** Chomping into this meat stick (don't laugh!) brought back a flood of rosy memories, like when I recently watched *The A-Team* for the first time in a couple of decades. Then the stark reality set in: *What the hell was I thinking back then?* I've forgotten how fatty a Slim Jim is, so much so that orange goo oozed out of it as I grasped it to take a bite! End of Days food? Sure. Lazy Sunday afternoon snack? Pass!

**Overall:** Well, I didn't feel like a pro wrestler after snapping into one, but I could certainly survive on these for a while. It's moist, pretty tender, flavorful with a bit of spiciness, but sort of greasy. It's hard to believe that this 14-inch thing had 17 percent of your total daily fat intake and 20 percent of your sodium intake, but in a desperate situation that's a good thing so it would make sense to stock up on a readily available brand like this.

**Overall:** Tastes like Macho Man Randy Savage climbed the top rope and elbow-dropped my taste buds. Yes, it's that good. This classic takes me back to childhood, but now with many more years under my belt, I can now distinguish between natural and unnatural ingredients. This thing is chock full of the latter. If it were my only choice, I wouldn't hesitate to eat it. But with so many other great options in this guide, why would I?

**Notes:** Technically not a jerky, the Slim Jim "smoked snack stick" had to make it in this guide purely due to its ubiquity. These meat sticks cannot be escaped, and in a quick pinch, they do make tasty snacks. That said, these are probably the worst for you health-wise. But in a survival situation, we wouldn't hesitate to take a whole box of them.

**Overall:** This will be spicy to only those who burn their tongues on black pepper. The "hot" flavor is really just a mild flavoring, but fortunately the meat itself is the perfect example of what jerky should be: dehydrated, but not dry and chewy and firm without breaking any fillings. Its bag is resealable, though with such a small batch in each package it seems almost pointless.

**Overall:** This version labeled itself as hot, but it's nothing that'll have you running to the milk carton. Good stuff overall. Too bad it comes in only a 2-ounce package, but I would surely stock up on these as emergency food. They're tasty and have at least a decent amount of survival nutrients. Bite-size pieces make them easy for children to survive on, as well.

**Overall:** Simple is sometimes the best way to go. This straightforward beef jerky is simple, quality jerky with a hint of spiciness. If you're looking for plain jerky with a kick, you've found it. It's rather tender and gives your jaw a satisfying texture to chew on. I'd get in line for more of this.

**Notes:** Featuring whole muscle cuts of beef and natural herbs and spices, this spicy hot version of Sweetwood Cattle Company's handcrafted beef jerky is made in small batches. It has no added MSG and is nitrate free. Also, the family-owned company is based in Colorado.

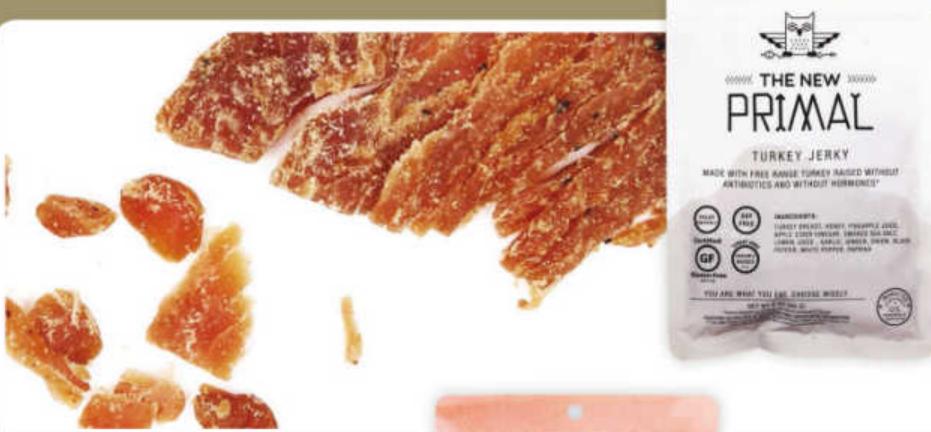
**Overall:** As much as I love Japanese food, I'm not fond of teriyaki in my jerky. But this snack from Sweetwood is what good ol' American jerky should feel like. It's soft to the touch, chewy in the mouth, and tasty on the tongue. The only drawback? It has 640 mg of sodium, almost a third of the recommended daily intake, in one small serving. Of course, if the world's gone to pot, that won't matter much.

**Overall:** This is definitely traditional jerky. Bite-size pieces with a great flavor and just a touch of spice. A 1-ounce serving has 27 percent of your sodium intake, though, so if you have high blood pressure you probably want to avoid this one. But if water retention is a goal, you're in luck. I'm not sure I'd care about all natural stuff in a desperate situation, but I can understand its importance as just a healthy snack.

**Overall:** This jerky is delicious, and I'm not even a fan of teriyaki. Teriyaki seems to be a very popular flavor for jerky. As the flavor calls for, this jerky is doused in the sweet and salty teriyaki flavor that you long for. The texture is tender and easy on the teeth. This one is probably my favorite in this buyer's guide.

**Notes:** This handcrafted, sweet teriyaki-flavored Sweetwood Cattle Company beef jerky is made in small batches of all natural ingredients. It is free of nitrates and has no added MSG.

## THE TASTE TEST


**MAKE & MODEL**  
**THE NEW PRIMAL**

Turkey Jerky

**CALORIES PER SERVING**

70

**PROTEIN PER SERVING**

12 grams

**PACKAGE SIZE**

2 ounces

**MSRP**

\$7.59

**URL**[www.thenewprimal.com](http://www.thenewprimal.com)
**MAKE & MODEL**  
**THE NEW PRIMAL**

Spicy Grass-Fed Beef Jerky

**CALORIES PER SERVING**

90

**PROTEIN PER SERVING**

12 grams

**PACKAGE SIZE**

2 ounces

**MSRP**

\$7.59

**URL**[www.thenewprimal.com](http://www.thenewprimal.com)
**MAKE & MODEL**  
**WILD ZORA**

Lamb &amp; Veggie Bars (Rosmary Spinach)

**CALORIES PER SERVING**

120

**PROTEIN PER SERVING**

6 grams

**PACKAGE SIZE**

1 ounce

**MSRP**

\$3

**URL**[www.wildzora.com](http://www.wildzora.com)
**MAKE & MODEL**  
**WILD ZORA**

Turkey &amp; Veggie Bars (Masala Spinach)

**CALORIES PER SERVING**

100

**PROTEIN PER SERVING**

7 grams

**PACKAGE SIZE**

1 ounce

**MSRP**

\$3

**URL**[www.wildzora.com](http://www.wildzora.com)

TESTER #1:  
Patrick Vuong

**Overall:** Its sweetness hits my tongue first, followed by a salty aftertaste, making for a strangely enjoyable, yin-yang-like taste. The texture is welcoming, too, as it has a solid balance between moistness and chewiness — as good jerky should. I like that it comes with a resealable bag and is among the more healthful offerings in this guide.

TESTER #2:  
John Schwartze

**Overall:** Wow! For taste alone I think this is unbeatable. I polished off the bag in seconds flat. The meat is moist with layer upon layer of flavor. Nice little bit-sized pieces with 24-percent protein per serving, 10-percent sodium, but zero fat — something you'd want a lot of for survival. Just for snacking on, though, it's amazing. Probably the best jerky I've ever had.

TESTER #3:  
Martin Anders

**Overall:** I can't put my finger on the flavors of this turkey-derived jerky. According to its ingredients, it is seasoned with pineapple juice and apple cider vinegar among other things. It's an interesting taste that I think I can grow to like. It is moist and tender — perhaps it is made of turkey — but it comes in much smaller pieces than other jerkies.

**Notes:** If you like the taste of social responsibility along with your salted-up meats, look no further than The New Primal. Its Turkey Jerky is made of Thanksgiving birds that enjoy four times the roaming area than that of the average commercial turkey. Their free-range turkeys are raised in a stress-free environment without antibiotics and hormones.

**Overall:** It's loaded with spices: cayenne, white pepper, black pepper, jalapeños, smoked paprika. With five kinds of heat, this jerky should be a spice-lovers paradise. But it's not that hot, and the spices seem to be used to mask how dry and tough the meat is rather than as a complementary seasoning. I'm surprised, considering how good the company's turkey jerky is.

**Overall:** Texture is definitely traditional jerky with nice thick strips. This has a sweet-and-spicy flavor, with emphasis on the spicy. To me, the other flavors it has are drowned out because of that. A serving has only 5 percent fat and 10 percent sodium, but a whopping 24 percent of protein. This was a big plus to me, but I wish the package were larger than 2 ounces. Would definitely pick this one just based on protein amount alone for survival.

**Overall:** Wow, this jerky was so tough to eat that I had to chew on one piece for a few minutes before I could get it soft enough to swallow. The flavor is a little sweet, plenty of spicy, but not salty enough for me. I'll pass on this one.

**Notes:** Let's start with free roaming grass-fed beef, treat it with pineapple juice and honey, then infuse it with cayenne pepper and jalapeños along with hints of onion, pepper, and ginger. That's what you're getting with this soy-free, paleo-friendly jerky.

**Overall:** True, this isn't exactly jerky. But why quibble when it'll all end up in the same place: my belly! This is one of the tastiest flavors of this bunch. Also, I like that Wild Zora adds veggies to its selections; they won't be enough to reach any sort of dietary minimum, but it's a forward-thinking move that others will probably ape soon enough. A \$3, one-ounce bag packs 120 calories — great bang for your buck.

**Overall:** This is definitely the most tender "jerky" I've ever had, and the flavor is pleasant. I could have chewed it up without teeth, so it would definitely work for kids, but I'm disappointed that it only comes in a 1-ounce package. I don't want to have to be storing tons of small packages for survival. There were only three pieces of jerky inside the package I had, so it was a miss for emergency food for that reason.

**Overall:** Even though it's lamb, I didn't detect any overt gamey flavor to this submission. In fact, I didn't really taste much flavor at all. It's very light tasting, so I lost interest pretty quickly. It is tender however and easy to eat.

**Notes:** If you're fond of vegetables and want some mixed in your jerky, you'll want to take a look at Wild Zora's lineup. While not technically jerky, these bars will still help you get the energy you need in an emergency situation. If you suffer from allergies, this food bar might have you covered: gluten-free, grain-free, soy-free, milk-free, nightshade-free, no nuts/peanuts/tree-nuts, no MSG or chemical additives, and even no added sugar. This bar is Autoimmune Protocol compliant.

**Overall:** Absolutely delicious. So much so that I was bummed when I finished the package in about 10 seconds. Still, I really like the softness of this meat-and-veggie combo, which is a nice change of pace after nearly getting lockjaw from trying traditional jerky for the past week.

**Overall:** This was on par with the lamb jerky for texture, but a little spicier. Very moist, tender, and flavorful. My only gripe again was the package. I'd rather store less packages with more in it, than a 1-ouncer with only a few bites. Would be a great snack if you ate like a bird, but I'm the guy who goes to In-N-Out and orders a burger with four patties. I'd have to pass on it for survival purposes.

**Overall:** I can definitely taste the Indian food-inspired masala-ness of this jerky. It has a healthy taste going on and a touch of sweetness. It doesn't really taste like a jerky, but it's good to know that it contains both meat and veggies. It's got a little fiber in it, which shouldn't hurt for later.

**Notes:** Although not technically jerky, Wild Zora's line of meat and vegetables bars can be a great alternative for those who are sensitive to different allergens. Its bars are made of both meat and vegetables and are gluten-free, grain-free, soy-free, milk-free, nightshade-free, no nuts/peanuts/tree-nuts, and have no MSG or chemical additives. This bar qualifies for the Whole30 Program and is paleo-friendly.

# SURVIVAL CHARCUTERIE

## Making Your Own Jerky

Story and Photos by Tim MacWelch

**J**forget everything you've ever learned about food safety and the proper handling of meat. Ignore the sound advice you heard in cooking school. Disregard that appalling silly VHS training tape you watched before working in that restaurant. Throw all your ideas of sanitary food prep to the wind. The age-old process of making jerky is in direct opposition with the modern ideals of the time and temperature of safe meat storage.

We're going to take raw meat, trim off the fat, dry it out in the sun – and somehow, almost magically – it's going to be safe to eat later.

So whether you're a hunter, a protein lover, or a hard-core prepper, knowing how to handle raw meat is an important skill. But what if you've harvested a larger animal than you can eat in one sitting? Or several animals at once? How do you make sure your precious protein lasts longer? In this article, we're going to bring back a skill that's an oldie but a goodie, we're going to show you how to make your own traditional-style jerky.

All it takes is fresh raw meat and a dry day to learn some invaluable jerky-making skills. And if you haven't figured out yet that jerky production is a good skill to know, just ponder how you'd store meat in a grid-down or wilderness setting. No freezer or pressure canner is likely to be available. This leaves drying as you're only real preservation solution. Don't worry about homespun jerky being some horrible archaic food, like acorn mush. We've all slavered over the savory goodness of jerky. And with a little care and attention, you can make good jerky, too. Hungry for it yet? Let's prepare some now.



## The Ingredients

The actual word “jerky” is believed to come from the Quechua word “ch’arki,” meaning salted, dried meat. However, jerky has had many names across the time and diverse locations it has been made. Bull cheese, biltong, jerk, meat floss, kilishi, and other colorful names have been applied to this traditional staple food item. But don’t think this is just some primitive tribal snack. Beef jerky has even been approved as astronaut food! NASA has supplied hungry space shuttle crews with this tasty, compact, high-protein snack since the 1990s. Here’s what you’ll need to start making jerky on your own.

**Firewood:** Hickory, mesquite, maple, and many other classic food-smoking woods are excellent choices for your firewood and smoke producers. Stay away from woods that produce a resinous black smoke, like pine, fir, and spruce. Also do your research to find out if you have any toxic woods in your area, and don’t use those for cooking or smoking.

**Fire-Starter:** It’s your call on this one. It could be the humble Bic lighter or a bow and drill set.

**Meat:** What kind of meat is jerky meat? It’s whatever meat you have. Deer and beef are excellent, but virtually any edible animal will work. Just pay attention to the fat. It must all be removed before drying the meat. It must also be raw to safely last through long-term storage.

**The Rack:** A free-standing tripod with cross bars is my favorite type of jerky rack, though many things can work. Hang the strips from a handy branch or dangle them from a string. Set them on a window screen, oven rack, or dish-washer rack that you have taken outside. You could even lay the meat on rocks, concrete, bricks, or some other absorptive surface, though dangling in the air is usually the fastest way to dry the meat.

**Spices, Seasonings, and Preservatives:** Salt, pepper, vinegar, garlic powder, soy sauce, a wide range of spices and many other items have been used to flavor jerky and assist in the preservation of it.

## The Steps To Jerky Heaven

Once your decisions have been made and your ingredients rallied, it’s time to go to work. It’s the hope of all jerky makers that the weather will cooperate on jerky day, but if not – there are options. Follow these steps and you’ll make your ancestors proud!

**Step 1:** Start off with fresh, raw meat and cut it into thin strips. As you work, remove all visible fat and throw it into a stew or find some other good use for those valuable calories. Most people prefer tender jerky, which usually comes from cuts that are perpendicular to the muscle fiber (perpendicular to the bone that was in the meat). Other jerky makers, however, prefer to cut with the grain of the muscle (in the direction that it once stretched and contracted). Try some both ways on your first batch to see which you prefer.

**Step 2:** Add salt, sugar, spices, and/or vinegar to the meat. This can be done by sprinkling dry ingredients, soaking, or wiping on wet ingredients. The meat could also be soaked in a marinade or brine at this time.



Make sure there is no oil in the marinade, as it will go rancid in the finished product. Some of these items, like the pepper, are just there for taste.

Other items, however, are there to help preserve the meat. Salt, sugar, and vinegar do a great job in discouraging the growth of bacteria, the primary organism behind spoilage. Salt creates a saline environment in the meat, which keeps harmful organisms from taking over. And vinegar creates an acidic environment, which helps to keep the bacterial hordes at bay. If you don’t have any flavorings or preserving agents, move on to step three.

**Step 3:** Hang the meat on your rack, string it up with twine, or lay it out to dry. Do this in the sun, preferably on a dry and breezy day – and a few feet downwind of a tiny smoky fire. It’s best if the frame or string of drying meat is mobile. This allows you to move the meat into the smoke if the wind shifts, and chase the sun as it travels. And never leave your jerky unattended, for a variety of reasons.

## Maggots!

Maggots! These little devils really add the “yuck” factor to the jerky-making process, but don’t throw your precious food source away just because it’s started moving again. Flies and their larvae are nuisances during the early stages of the jerky process, but they are easily repelled by using smoke or increasing your smoke output. Just remember to keep the meat bathed in smoke, yet away from the heat. Cooked meat spoils much faster than raw meat. And if some tenacious flies do make it past the smoke screen, simply wipe off the egg clusters (or moving maggots) and return the meat to the drying rack. You may not spot them at first, as the egg masses tend to get deposited underneath the jerky strips, but you’ll usually find them when you turn the jerky over for the first time while drying. Then, once the meat gets a crusty skin on it, the flies tend to leave it alone anyway.



## Best Meats

Don't feel like cattle and deer are the only creatures that can transform into jerky. Any raw meat from any edible animal species can be dried and preserved using the techniques listed here. But not all jerky is equal. The red meat and white meat mammals are certainly prime candidates for jerky, but edible birds, reptiles, and fish can turn into jerky as well. They may not be as appetizing as dried red meat, but they do work.

Fish jerky, wild turkey jerky, snapping turtle jerky, gator jerky, whatever jerky – all can provide nourishment, but perhaps not the dining experience you were hoping to receive. Freshwater fish jerky is probably the worst, being fairly awful under ideal conditions. While deer, beef, elk, moose, buffalo, and similar animals are global favorites and should be your top choice – if choice is an option. If not, then turn whatever beast you have into a salty spicy jerky. If you dial up the seasonings, it really dials down the gag reflex.

## A Final Step for the Faint of Heart

When eating jerk, you're eating raw meat. This can bother some people. Around my camp, there is one bonus step before jerky consumption – this is some form of cooking. An easy and tasty way is to impale the dried meat strip on a pointy stick and toast it briefly over the campfire. This changes the color and the flavor (in a good way), and it kills any live organisms that are lingering on the jerky's surface or inside it. This extra step could be considered paranoid, but in many ways, it just feels right. Another common use for jerky is in soups, broth, and stew. The jerky can be pounded with a clean dry rock, until it is pulverized. Add this powder to hot water and simmer for half an hour. The resulting broth is full of somewhat tender slivers of meat and very welcomed on a cold day.



**Step 4:** Dry the meat until it begins to feel stiff and leathery. On a rack or flat surface, turn each piece so that any damp shady spots get exposed to sunlight. Continue drying, keeping the meat in the smoke,

but not directly over the heat. Dry the meat until it becomes brittle when bent. Red meat will turn purplish-brown. White meat will turn grayish-pink.

If the weather takes a turn on jerky day or your meat hasn't dried all the way before dark, move all the meat into shelter and finish the drying process the next day. Don't leave it out overnight. The dampness is bad, but the scavengers are worse. It's probably going to be gone in the morning. In extended wet weather, you'll have to dry the meat with the heat of the fire. This will buy you a few days of storage before it spoils, as will using cooked meat for jerky in the first place. But it's not safe to store cooked, dried salted meat past one week.

**Step 5:** Store the finished jerky in a dry paper bag, cloth sack, wooden box, or some other breathable container. This keeps the jerky from sweating and helps it to last longer. If the weather is cool and dry, jerky like this may last for weeks or months. In humid weather, eat it as soon as you can, but stop using it if the meat becomes moldy or takes on a bad smell. Trust your eyes and nose when storing jerky under questionable damp conditions.

## Conclusion

You were warned that safe food handling ideals would be thrown out the window in this article, and they certainly were – by allowing raw meat to lie about in warm weather. But consider the fact that many ancestral cultures used jerky as a valuable staple food item, trade good, pet food, and even as a currency. So if your power goes out while you have a deep chest freezer full of steaks, now you know what to do with your rapidly melting investment of meat – make a mountain of jerky!

Regardless of whether you are a bushwhacker, homesteader, or urban survivalist, the skill of jerky making has some serious benefits and there's no better time to start honing your skills than right now. Grab the rack out of your oven, hang salted meat all over it, and set it on a sunny balcony or deck to become the salty little jerky bits that they were meant to be. Enjoy! ■■

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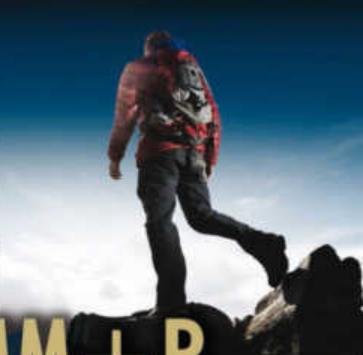
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# SPEED DEMON

**Boost Your Sprint Performance  
and Save Your Life**

**Story and Photos by Ryne Gioviano**



ome say speed kills. In this case, it's going to save your ass. Quickly evading imminent danger is an absolute necessity, and we're not going to let a lack of knowledge be the reason why you're slow. Sprint training is often overlooked in a physical preparation program, usually in favor of bench presses and asinine machine exercises.

Based on your surroundings or what you have available, traveling on foot might be your only option, which is why it's such a key component to a solid physical preparation plan. Quick bursts of speed may be the difference between life and death. After you absorb the information in this article, you'll be well on your way to developing a plan to increase speed and to have the tools to potentially get yourself or others out of a real bind in the future.

## Phases of Sprinting

What do escaping a wildfire, running from a pack of wild dogs, and evading roaming bandits have in common? You'll sure as hell have a better chance if you're fast! Don't worry – even if you have no idea what to do, we'll outline what you need to know.

Sprint training might seem complicated, with many little nuances only an experienced coach might understand. Fortunately,

this doesn't have to be the case. Let's break things down into digestible steps that will be very easy to not only understand, but also to implement.

Before we go into the training, let's briefly look at technique. Good sprint training is broken up into two main parts, the acceleration phase and the top-end phase.

## Acceleration Phase

The acceleration phase is characterized by more of an angled, head-down body position, relying more on the strength and power of your lower body. This is the first phase, as you transition from being still to running. The initial quickness of the acceleration phase really comes into play in those situations that call for short bursts of speed, such as sprinting for cover between houses, parked cars, or other obstacles.



## Top-End Phase

The top-end phase is a bit different – you're in a more upright posture due to the fact that you're primarily maintaining a speed for as long as you need to. You transition into this phase after the acceleration phase, as you begin running at full speed. This phase relies more on the up-and-down action of both your arms and legs. The top-end phase is extremely important in circumstances where you may have to outrun another person, animal, or anything else that requires you to run at distances longer than 30 yards (about 100 feet).



**Speed Drills**

Knowing what good technique looks like is great, but let's put together some drills to make that process easier. These drills are just simplified versions of specific movements used

in actual running. When put into practice, they can dramatically improve your sprinting technique. Better technique equals a much better chance of making it to safety.

## **Acceleration Drill #1 Wall March**

Begin with your hands on a wall and your feet further back, creating an angled position. Bring one knee up with the ankle also pulled up toward your shin. From here on out, nothing above the hip moves.

Now bring that same raised leg down. Once it makes contact with the ground, drive the opposite leg up to the same position.

Repeat, alternating which leg is raised. Don't allow your total body lean to be lost. Repeat on each side for the recommended number of repetitions.



## **Acceleration Drill #2 Push-Up Start**

Begin face-down with your hands under your shoulders and your toes in contact with the ground. Explosively push your body off the ground as you bring one leg upward.

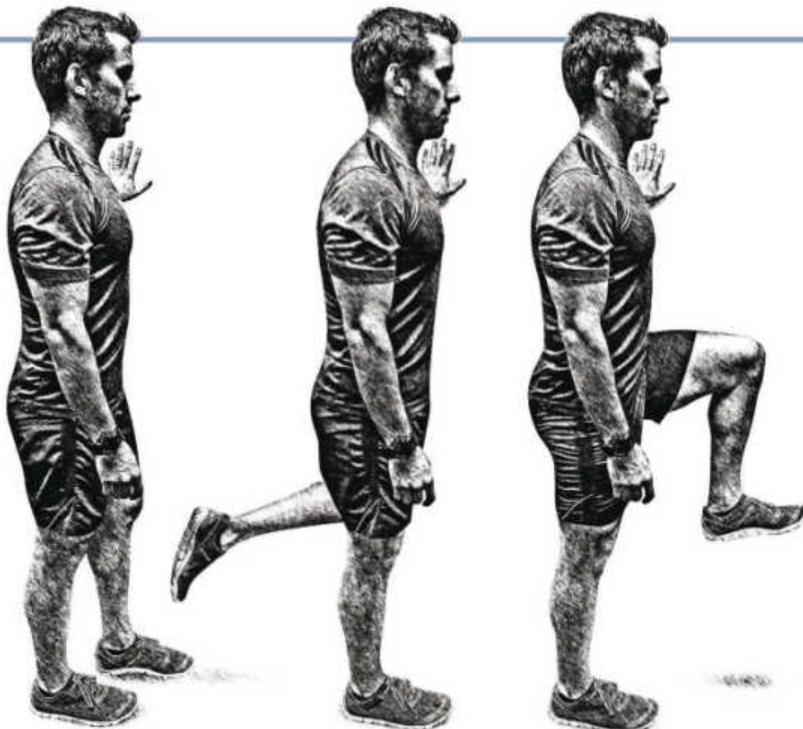
Drive your foot into the floor and take off. Sprint for an additional 10 to 20 yards. Repeat for the recommended repetitions.



## Top-End Drill #1 Wall Top-End Posture

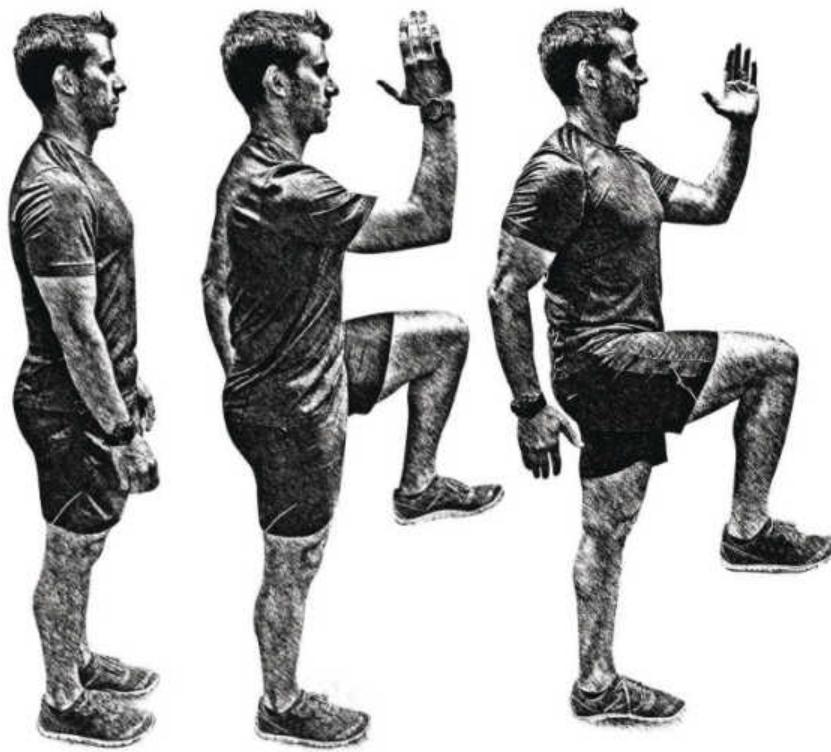
Start standing completely upright with one hand on a wall. Place the foot closest to the wall about 6 inches in front of the other leg, with pressure on your forefoot.

Drive your foot back behind you. Then keep the leg tight, and drive the knee up. Return to the starting position. Pause briefly, and repeat slowly for the recommended repetitions.



## Top-End Drill #2 High-Knee Marching

Allow for about 15 yards of movement. While maintaining an upright posture, simultaneously drive one knee and the opposite arm upward. Bring the leg down, and repeat on the other side while moving forward. Complete for the recommended amount of repetitions.



### Putting it All Together

Next, let's discuss what your actual sprint training will look like. In order to make speed training successful, there has to be progressive loading from week to week. We can't just jump in the deep end right from the start, or else you might get hurt. This way, you'll be able to adapt and improve

without much risk of injury.

The four tables show a sample training program in a 12-week period with optimal recovery time between each repetition and set. Complete each of these programs at least twice per week. Start with phase 1 for three weeks, then move on to phase 2, and so on.

**PHASE 1 - 3 WEEKS**

<b>Exercise</b>	<b>Sets</b>	<b>Reps</b>	<b>Distance</b>	<b>Rest (sec)</b>
Wall March	3	10/Side	N/A	30
Wall Top-End Posture	3	10/Side	N/A	30
High Knee March	3	N/A	15 Yards	30
Push-Up Start Sprint	5	N/A	10 Yards	60
Short Sprint	4	N/A	30 Yards	90
Long Sprint	2	N/A	80 Yards	150

**PHASE 2 - 3 WEEKS**

<b>Exercise</b>	<b>Sets</b>	<b>Reps</b>	<b>Distance</b>	<b>Rest (sec)</b>
Wall March	3	10/Side	N/A	30
Wall Top-End Posture	3	10/Side	N/A	30
High Knee March	3	N/A	15 Yards	30
Push-Up Start Sprint	4	N/A	20 Yards	90
Short Sprint	4	N/A	40 Yards	120
Long Sprint	2	N/A	100 Yards	180

**PHASE 3 - 3 WEEKS**

<b>Exercise</b>	<b>Sets</b>	<b>Reps</b>	<b>Distance</b>	<b>Rest (sec)</b>
Wall March	3	10/Side	N/A	30
Wall Top-End Posture	3	10/Side	N/A	30
High Knee March	3	N/A	15 Yards	30
Push-Up Start Sprint	5	N/A	20 Yards	90
Short Sprint	4	N/A	50 Yards	120
Long Sprint	3	N/A	100 Yards	180

**PHASE 4 - 3 WEEKS**

<b>Exercise</b>	<b>Sets</b>	<b>Reps</b>	<b>Distance</b>	<b>Rest (sec)</b>
Wall March	3	10/Side	N/A	30
Wall Top-End Posture	3	10/Side	N/A	30
High Knee March	3	N/A	15 Yards	30
Push-Up Start Sprint	4	N/A	30 Yards	90
Short Sprint	4	N/A	50 Yards	120
Long Sprint	4	N/A	100 Yards	210

**Conclusion**

Adding in some of this sprint training will be a tremendous aid to you in the future. With uncertainty around every corner, you can't be dependent upon cars, bikes, or other means of transportation. There's a certain peace of mind that comes with knowing that you can handle yourself no matter what is thrown your way. Being quick on your feet is a key aspect of your overall physical preparation plan, and, therefore, cannot be overlooked. ☺

**About The Author:**

Ryne Gioviano is the co-owner of Welligee Personal Training & Lifestyle located in Naperville, Illinois. He holds a master's degree in exercise physiology and is certified through the National Strength and Conditioning Association.

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**URL**[www.goalzero.com](http://www.goalzero.com)**Story and Photos by Patrick McCarthy**

## Reviewing the 3-in-1 Rechargeable Torch 250 from Goal Zero

# ETERNAL FLAME

Torch 250 is a device with an internal battery, and three built-in methods to recharge it: manual cranking, solar panel, and traditional USB cable.



**T**here's an old saying about gear redundancy: "Two is one, and one is none." Obviously, this philosophy is intended to remind us about redundancy. Did we mention redundancy? Seriously though, it's not always practical to follow this one-liner, since nobody wants to lug around two of everything all the time. However, on a much smaller scale, the "two is one" mindset does make sense. If a single tool can have multiple redundant functionalities, it can dramatically increase its reliability in a survival situation.

Take vehicles, for example. Rather than relying on a single fuel for your bug-out truck, you'd be better off with a rig that could run on diesel, used vegetable oil, and natural gas. If you can't find one power source, you've got two more options. The same goes for electronics – if the electrical grid is down, you can't necessarily plug into a wall socket and expect any juice. You'll need to find alternative means of recharging.

Goal Zero has developed a solution to this dilemma. The company's Torch 250 is a device with an internal battery, and three built-in methods to recharge it: manual cranking, solar panel, and traditional USB cable. Said battery power can be used to run various attached

LED lights, or to charge other devices via a USB port. This sounded like an interesting premise, so we picked one up to review.

### The 411

The Torch 250 is larger than most flashlights, at 10x3.5x1.75 inches, or about the size of an adult's forearm. However, it's also relatively light, at under 1 pound (14.4 ounces). The device is constructed of hard plastic with a black rubberized finish and bright green accents. Inside the Torch is a Li-NMC 3.7V 4,400-mAh battery, which is rated to operate between temperatures of 32 and 104 degrees F (0 to 40 degrees C).

The front face of the Torch is occupied by a 2x5.5-inch solar panel, which Goal Zero says will recharge the battery fully after 24 hours of direct sun exposure. Additional Goal Zero solar panels, such as the Nomad 7 (\$79.99 MSRP), can be connected for quicker charge time. At the top of the Torch is a trio of LEDs in a chrome-reflector housing. In the center is a 180-lumen Cree LED spotlight, while the outer two LEDs provide dimmer red light for signaling or map reading at night. On the back side of the device, you'll find an array of 22 LEDs under frosted clear plastic. These are configured in a wide flood light pattern, and provide an additional 70 lumens of white light.



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On one side of the Torch, there's a bright green hand crank, which is held in place by a small magnet. Pivoting this handle out and turning it charges the device's battery. According to Goal Zero, 1 minute of fast cranking will provide 10 minutes of light run time. On the opposite side, there's a built-in USB cable, which can be plugged into any USB port or wall charger to fully recharge the device in seven hours.

The bottom of the Torch houses its controls: three green buttons for the flood light, spotlight, and red LEDs. Each button can be pressed once for full power, and a second time for low power (or in the case of the red LEDs, a flashing mode). The spotlight will run for seven hours on high, or 15 on low, while the flood light runs for 22 hours on high, or 48 on low. Beneath the buttons is a set of four blue LEDs, which indicate battery level when the device is in use, or flash to indicate battery level when charging. The USB port below allows charging of other electronics at 5V and up to 1.5 amps. Goal Zero claims it will recharge most cell phones approximately two full times. Finally, there's a fold-out metal hanger, which allows the Torch to be suspended to light up a room or basecamp.

## The Verdict

For a device called Torch, we were hoping it would be a better flashlight. In reality, the spotlight function actually seems like an afterthought, especially since using it means holding the brick-shaped Torch 250 awkwardly in your hand. The spotlight beam pattern is not particularly even, and its light appears more yellow than the flood light. The red light function suffers from similar issues, though its dual LEDs provide a more even beam pattern. That said, the flood light is better than the other two functions, lacking the spotlight's yellow tinge and providing a near-180-degree wide spread of bright light.

However, we tested Goal Zero's claim that it would run for 48 hours on the low setting – our light shut off after 25 hours, even with a full charge.



On one side of the Torch, there's a bright green hand crank, which is held in place by a small magnet. Pivoting this handle out and turning it charges the device's battery.

As a portable battery, the Torch 250 fares better. It's worth noting you'll need your own USB cable to connect your electronic devices, but that's not uncommon for portable batteries these days. The Torch charges devices at 1.5 amps, which is about the same as most

smartphone wall chargers. We tested charging speed with a common smartphone, and found that after 10 minutes, the Torch increased its battery charge by 6 percent – the exact same amount as when it was plugged into the wall for 10 minutes. The internal battery's 4,400-mAh capacity isn't as much as we'd like, since it runs out of juice quickly when charging devices, and many other portable USB batteries offer double or triple that amount of mAh. However, it trades high battery capacity for light weight, an understandable compromise.

When it comes to recharging, the Torch 250 lives up to its claims for the most part. You can charge the internal battery traditionally via the built-in USB cable, but strangely, Goal Zero doesn't include a USB wall charger attachment with the Torch. A standard cell phone charger will work fine for this purpose, but we wish Goal Zero had given us a spare. Then there's the hand crank, which is tedious to use, but it's good to have as a backup. Finally, there's the solar panel, which was surprisingly sensitive to ambient light. Just walk outside, and the four blue battery LEDs turn on to indicate the panel is working. We'd say solar is the ideal way to charge this device if the power's out, although the panel seems rather fragile and prone to scratches, given its location and lack of protective cover.

There's one additional feature we'd like to see implemented into the Torch. Goal Zero does sell a USB attachment separately to charge AA batteries (the Guide 10 Plus Recharger for \$49.99 with four batteries), but we'd love to see that functionality integrated into this device, or at least offered as a discounted add-on. That way, you'd be able to easily recharge small flashlights and other electronics that don't have a USB port.

The Torch 250's lighting-related hiccups make sense when you consider that Goal Zero is known more for their portable batteries and solar panels than their lights. Overall, this device is a mediocre flashlight, a pretty good flood light, an average portable battery, and a great rechargeable backup power source for electronics. With an improved spotlight, larger battery capacity, and less bulky design, the Torch 250 could be truly outstanding. As it stands now, it still has several useful features in an all-in-one package – and it's not bad value for \$80. ■■

All manner of electronic devices can be charged from the built-in USB port, including GPS units, headlamps, cameras, and cell phones.

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# Lava Factories

## Today's Active Volcanoes

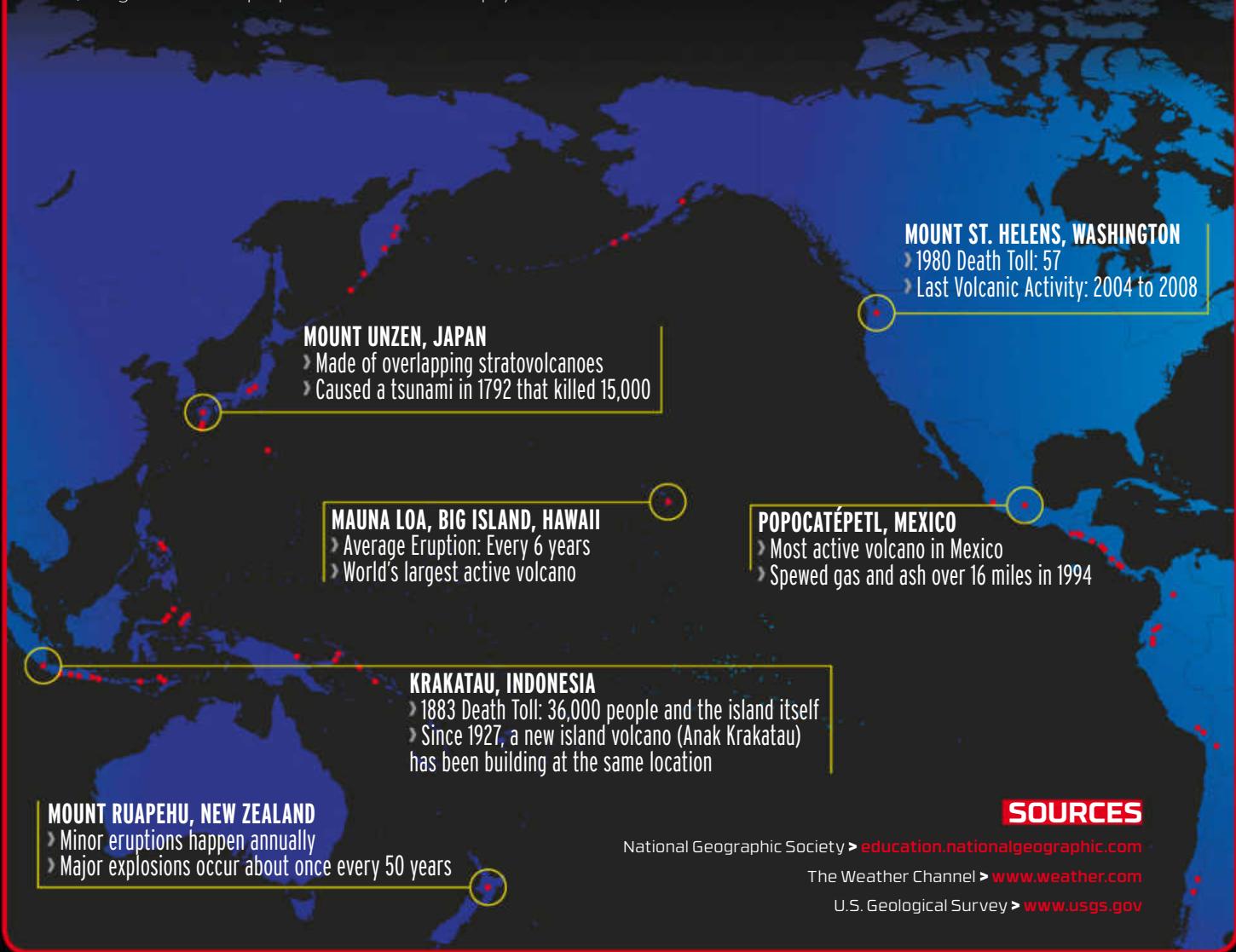
Story by Patrick Vuong

If you haven't read it yet, you might be scoffing at the scenario we posed in this issue's *What If?* feature. "Deadly volcanoes?" you ask. "How can anyone die by lava when it moves so slowly?" Well, outrunning flowing magma might be the least of your worries.

In 1985, Colombia's Nevado del Ruiz erupted, melting summit glaciers and causing mudflows to blanket nearby towns. More than 25,000 people died. Closer to home, Mount St. Helens blew her lid in 1980, killing more than 50 people – most died due to asphyxiation

from ash and toxic gas. Volcanoes have been fatal in other ways, from ejecting lethal debris to causing devastating tsunamis and even famine.

So, pay attention to any news reports about active volcanoes. Even if you don't live next to them, you could be vacationing nearby when one of these blows. Or, at the very least, you could spew fun facts the next time your wife decides to watch *Joe Versus the Volcano* for the umpteenth time. Below is just a handful of the many active volcanoes on this molten rock we call Earth. ■



### SOURCES

National Geographic Society > [education.nationalgeographic.com](http://education.nationalgeographic.com)

The Weather Channel > [www.weather.com](http://www.weather.com)

U.S. Geological Survey > [www.usgs.gov](http://www.usgs.gov)

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